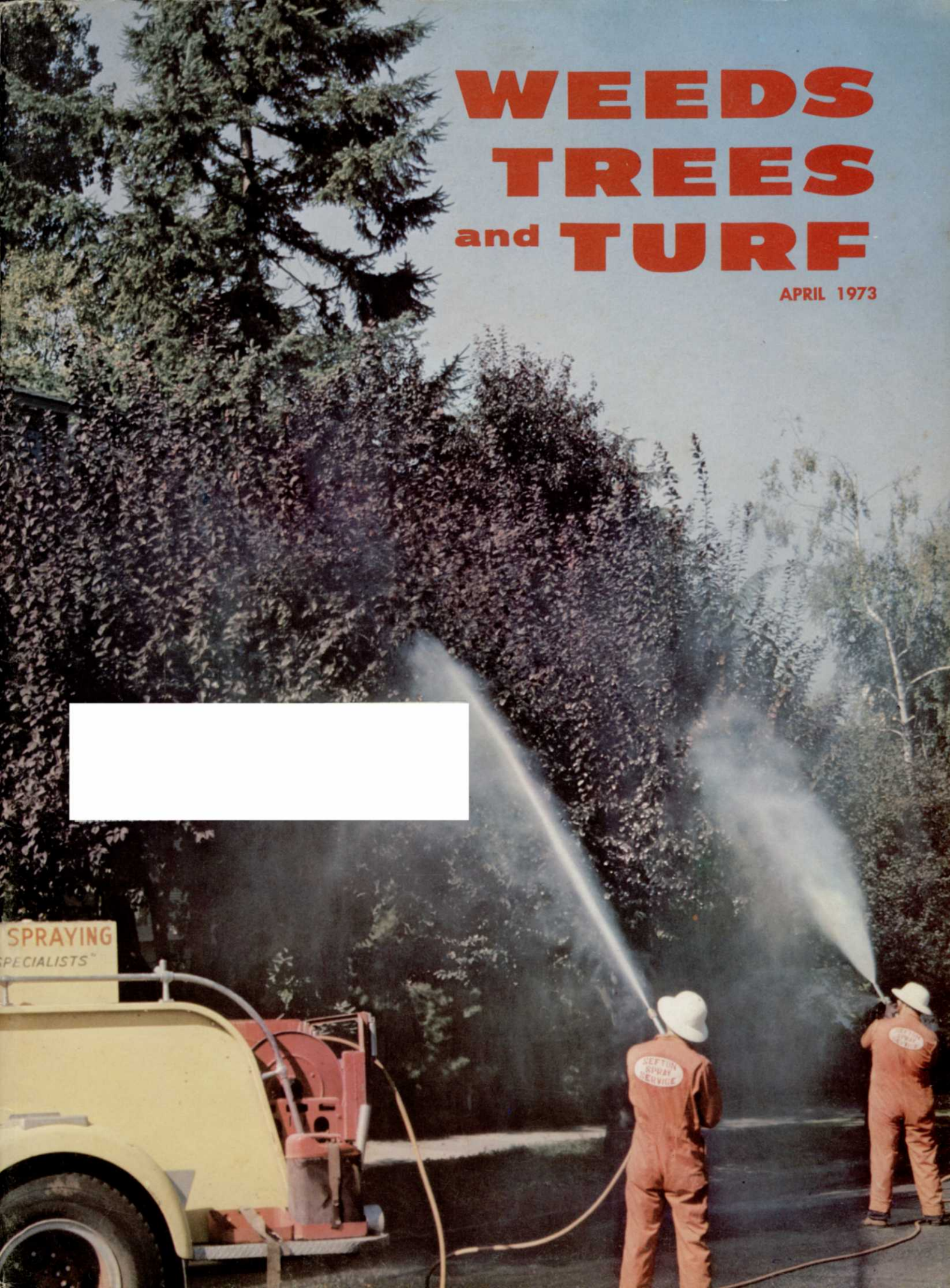
WEEDS TREES and TURF

APRIL 1973



Drift control.
So economical you can't afford to do without it.
Nobody can afford pesticide-drift. That's why we made a drift-control spray additive anybody can afford. For as little as a cent a gallon of spray volume, aerial applicators, ground contract applicators and others can cut drift to reduce risks, increase safety.
Lo-Drift mixes quick and easy with herbicides and many other pesticides. You just add one pint per 100 gallons of water, and you're ready to go. (For extra thickening, you can go up to one quart per 100 gallons.) No special nozzles, no special mixing or spraying equipment needed.
Lo-Drift can be put through almost any spray applicator, no matter how small or large. Won't corrode equipment, fast, simple clean-up. Non-toxic too.
Lo-Drift is not a foam, not a particulating agent. It's an emulsifiable polymer that gets the job done easier and more economically than ever before.
LO·DRIFT™
SPRAY ADDITIVE
For More Details Circle (149) on Reply Card
AMCHEM PRODUCTS, INC., AMBLER, PA.
AMCHEM

New Ford Flails: Strength that cuts it.

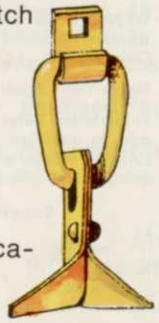
New Ford flail mowers are all new, inside and out, and built to resist tough, punishing work! Drive-line features heavy-duty components like banded V-section belt drives . . . hi-capacity bearings . . . rugged gearbox. Welded frame braced by full-width torque tube maintains gear and drive alignment wrapped in a high-strength

sheet steel housing. Available with new optional rear bumper, right-end bumper guard, gauge wheels, and steel or rubber gauge rollers. Ford flails are built to take it! And servicing is easy.

New blade hanger lets you remove one blade at a time. Bolt-on design makes blade removal and reattachment fast and easy.

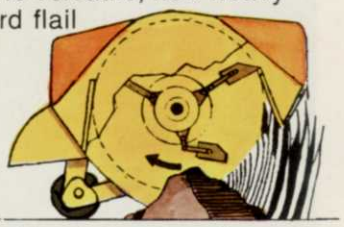
Improved flail-safe design. Protective configuration of the heavy steel rear shield is designed to prevent straight-line ejection of material from under the mower housing, regardless of cutting height.

Now, three new sizes. 62-inch, 74-inch, and 88-inch models are available to match your tractor power and mowing needs. All offset for ease of mowing close to trees and other obstacles.



Widen the range of flail mower applications. Rugged new Ford flails improve mowing results even in some areas where you are now using rotary cutters and cutterbars.

See the versatile, new heavy-duty Ford flail mower line at



your Ford tractor and equipment dealer. He is listed in the Yellow Pages under "Tractor Dealers" or "Contractors' Equipment & Supplies." See him for information on how to buy, lease, rent, finance.

NUMBER ONE ON WHEELS AND GROWING

FORD TRACTOR

Ford

For More Details Circle (122) on Reply Card

WEEDS TREES and TURF®

Volume 12, No. 4 April, 1973

James A. Sample
Editor

Hugh Chronister
President

Arthur V. Edwards
Publisher

D. D. Langley
Director of Circulation

ADVERTISING SERVICES

Leo Nist
Advertising Production
9800 Detroit Ave., Cleveland, Ohio 44102
Tel. 216+651-5500

ADVERTISING SALES OFFICES

Headquarters
Cleveland, Ohio 44102
9800 Detroit Ave./216+651-5500 Ext. 27

Chicago, Illinois 60601
333 N. Michigan Ave./312+236-9425
John Kielp

New York, New York 10017
757 Third Ave./212+421-1350
Russell Bandy

Cleveland, Ohio 44102
9800 Detroit Ave./216+651-5500
Roger Gilmore

"Serving The Green Industry"

Workers Should Be Protected From Pesticide Exposure 12
The Green Indusry has been built around the application of environmental protection chemicals. Homer R. Wolfe, chief, Wenatchee Research Station, Wenatchee, Wash. discusses the kind of protection needed when applying chemicals.

Tree Injection Systems 14
One of the newest injection systems yet is SIReservoir. Here's a report on how to use it in combating Dutch Elm Disease and other tree deficiencies.

New Twists In Drainage 18
Modern drainage systems are an important factor in the management of turfgrass, trees and landscaped areas. Eugene M. Witter, Hancor, Inc. reports on what's new in drainage tubing.

Brush Control Programs Gain Public Support In New Hampshire 20
Public involvement in rights-of-way easements has created favorable working relationships in New Hampshire. Public Service Co. forester S. N. Macrigeanis tells how bromacil brush killer has helped change public attitude.

National Arborist Association Report 22

Scientists and Industry At Work Together 24
A special WEEDS TREES AND TURF report on the Weed Science Society of America annual meeting.

Ohio Short Course Draws 1850 Delegates 26

Consulting Arborists Elect Walter Morrow President 44

Anaheim Acts to Save 100 Trees 62

Editorial 6
Government News/Business 8
Green Industry Newsmakers 32
Arborist Shop Talk 38
Industry People On The Move 40
Sod Industry Section 42
Meeting Dates 47
Insect Report 49
New Products 54-55
Advertiser's Index 64
Classifieds 65
Trimmings 66

The Cover

Environmental protection chemicals play an important role in the businesses of the Green Industry. Proper application can be as big an image builder as a heavy advertising program. Here, Raymond Myer (1) and Don Fowler of Sefton Spray Service, Lake Oswego, Oergon, spray these ornamentals for insect control.

WEEDS TREES and TURF is published monthly by The Harvest Publishing Company, subsidiary of Harcourt Brace Jovanovich, Inc. Executive, editorial headquarters: 9800 Detroit Ave., Cleveland, Ohio 44102.

Single Copy Price: $1.00 for current and all back issues. Foreign $1.50.

Subscription Rates: WEEDS TREES AND TURF is mailed free, within the U.S. and possessions and Canada, to qualified persons engaged in the vegetation care industry and related fields in controlled circulation categories. Non-qualified subscriptions in the U.S. and Canada are $10.00 per year; other countries, $12.00 per year. Controlled circulation postage paid at Fostoria, Ohio 44830.

Copyright © 1973 by the Harvest Publishing Company

ABP

Member
American Business Press
Business Publications Audit

BPA

save trees

MAUGET tree injectors

MAUGET TREE INJECTION PROCESS

Avoids drilling damage

APPROVED Trunk Injection Method for Utilizing Benlate® Fungicide In Combating Dutch Elm Disease Under EPA Reg. No. 352-354.

INJECT-A-MIN® Nutrients for Correction of Elemental Deficiencies In Problem Trees.

INJECT-A-CIDE® for Control of Many Insect Pests In Ornamental Trees.

J. J. MAUGET CO.

P.O. Box 3422 BURBANK, CALIFORNIA 91504

MAUGET TREE INJECTION MEETING DATES AND PLACES

- ☐ March 27 — Phoenix, Ariz., Holiday Inn, Airport
- ☐ March 29 — Spokane, Wash., Ramade Inn
- ☐ April 9 — Houston, Tex., Holiday Inn, Airport
- ☐ April 11 — Oklahoma City, Okla., Holiday Inn, West
- ☐ April 13 — Little Rock, Ark., Holiday Inn, North Little Rock
- ☐ April 23 — Atlanta, Ga., Holiday Inn, South
- ☐ April 25 — St. Louis, Mo., Holiday Inn, North
- ☐ April 27 — Louisville, Ky., Holiday Inn, South
- ☐ May 7 — Denver, Colo., Holiday Inn, Airport
- ☐ May 9 — Minneapolis, Minn., Holiday Inn, Airport #2
- ☐ May 11 — Chicago, Ill. Holliday Inn, O'Hare Airport
- ☐ May 15 — Cleveland, Ohio, Holiday Inn, Airport, West
- ☐ May 28 — Philadelphia, Pa., Holiday Inn, Airport, South
- ☐ May 30 — New York, N.Y., Holiday Inn, LaGuardia Airport
- ☐ June 1 — Boston, Mass., Ramada Inn, Logan Int. Airport

All meetings begin at 9 a.m.

Registration Fee: $8.00 each. Payable to:

J. J. MAUGET CO.

Attached registration card and fee must be received at least 10 days prior to meeting.

MAUGET TREE INJECTION REGISTRATION

Reserve _____ places in _____ (city)

NAME(S) _____

_____

_____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

Registration Fee: $8.00 (includes coffee, Danish and lunch). No Refunds. Meeting to begin at 9 a.m.

Make Checks payable to: J. J. MAUGET CO.

Enclosed fee of $_____

Return this registration form and fee at least 10 days prior to meeting to:

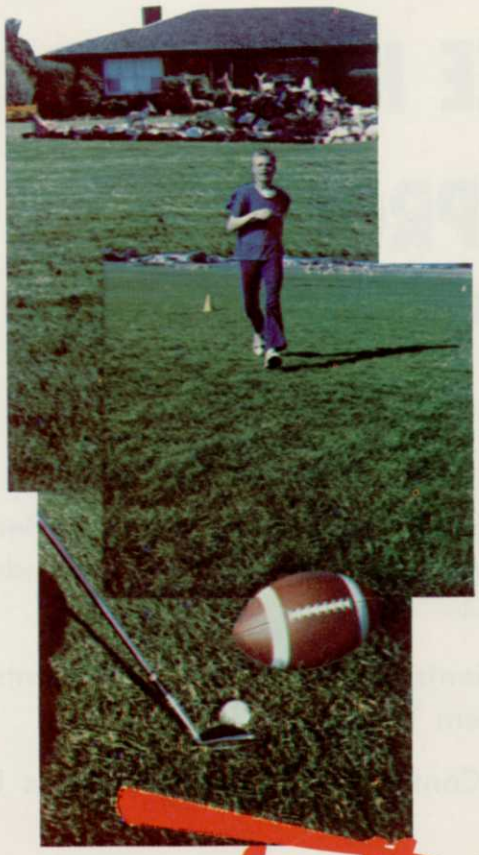
DEL KENNEDY

Meeting Moderator

P.O. Box 365 • UKIAH, CALIF. 95482

For More Details Circle (150) on Reply Card

WHAT DO ALL THESE LUSH, GREEN LAWNS HAVE IN COMMON?



Manhattan

TURF-TYPE

PERENNIAL RYEGRASS!

Ideal for all hard use areas

GOLF TEES - GREEN APRONS - CART PATHS
FOOTBALL, BASEBALL and SOCCER FIELDS
HOME LAWNS and CEMETERIES

Look For The
"OREGON CERTIFIED"
Blue Tag

EXCLUSIVE WORLD-WIDE DISTRIBUTORS

WHITNEY-DICKINSON SEEDS, INC.
52 Leslie Street • Buffalo, New York 14240

Certified Manhattan is grown by the
MANHATTAN RYEGRASS GROWERS ASSOCIATION
P.O. Box 145 • Hubbard, Oregon 97032

Editorial...

Noise And The Federal Government

Without exception, everyone in the Green Industry is subject to two recently enacted laws that severely curtail the level of noise emitted into the environment. While little regulation has been done to date, you can be sure that only time is in our favor. The squeeking wheel will be getting plently of grease, and soon.

We're now aware that the Occupational Safety and Health Act has made provisions for noise control. We need not further debate OSHA.

More importantly, however, is a new law, the Noise Control Act of 1972, which will be administered by the Environmental Protection Agency. Legislation for this law began in 1968 when Congress directed the Federal Aviation Administration to establish rules and regulations to control aircraft noise. Noise gained more importance when state and local noise ordinances were passed. The Clean Air Amendments of 1970 established an Office of Noise Abatement and Control within EPA and set up the framework for public hearings on environmental noise.

The result is the present law which in many respects has the power to curtail Green Industry noise all the way down to the power mower in the backyard.

Basically, Administrator Ruckelshaus has been given the authority to develop and publish information about permissible levels of noise, and then set noise standards for products that have been identified as major sources of noise. Categories of products rather than single products themselves are to be identified. Thus a chain saw may be grouped with all cutting equipment, or a chipper included in the same group as heavy machinery.

One noise abatement plan recently submitted for the aircraft industry would be to assign a certain decibel rating to each airline. Those airlines with noisy planes would either fly fewer flights or make greater use of newer low-noise jet aircraft and older prop-driven planes. Going over the assigned decibel rating would draw a penalty.

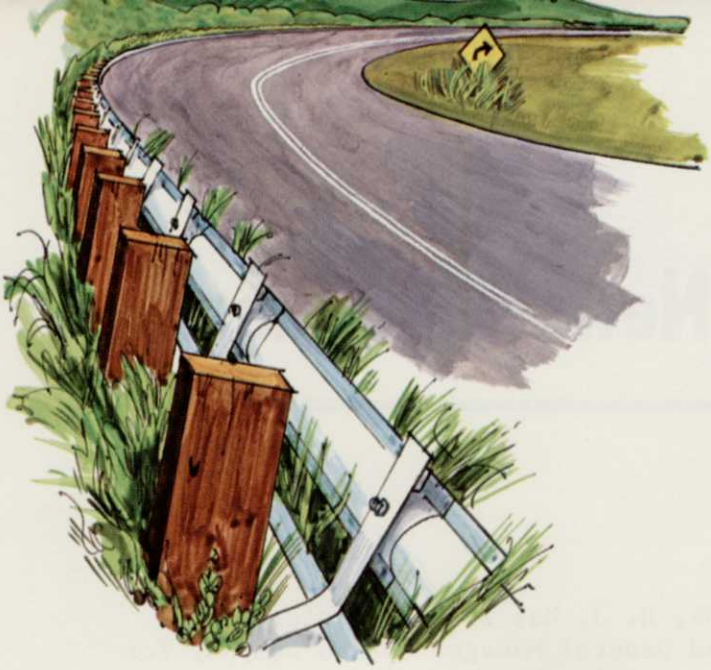
We do not propose that this plan be imposed on the Green Industry. Nor do we accept Green Industry equipment categorized with construction, transportation or other heavy industrial equipment. We believe that specific noise standards must be developed by Green Industry organizations that are acceptable to those who make up the industry. Each major organization has the capabilities and resources within its membership to produce industry standards.

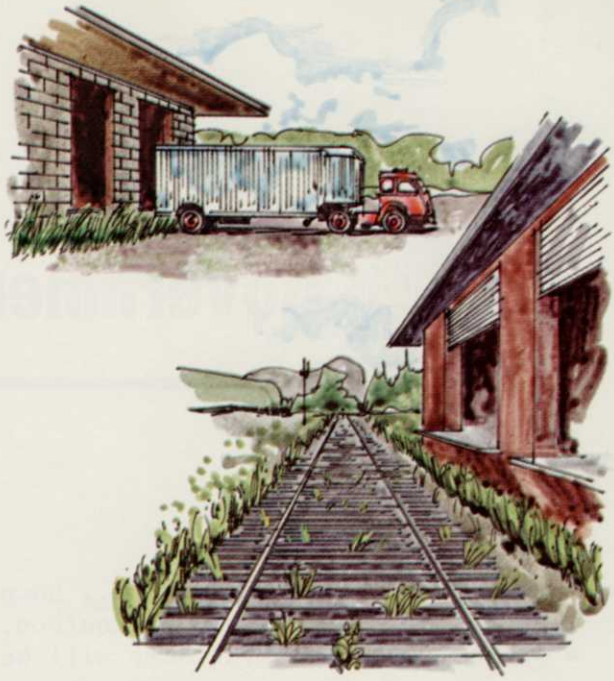
As Dr. R. P. Upchurch, past president of the Weed Science Society of America said recently,

(continued on page 49)

For more details on following page circle (121) on reply card

For More Details Circle (138) on Reply Card





Needless maintenance costs are growing all around you.

Eliminate weeds from your facilities and you'll slash needless maintenance costs. Weeds trap moisture which makes equipment deteriorate faster. They also interfere with work crews...create fire and safety hazards...contribute to air pollution by releasing pollen.

The most effective way to eliminate weeds is a chemical control program based on Du Pont HYVAR bromacil weed killers, or formulated products containing bromacil. Sprayed on early in the spring, a single application of bromacil controls weeds all year long. No need for expensive cutting by hand or machine.

Such a program can be handled by your own maintenance staff. Or, better still, let a professional custom applicator handle the job. He's a weed control expert who will design and implement a program that fits your needs exactly.

Whichever way you go, do-it-yourself or custom application, the cost is much smaller than mechanical or hand-trimming methods.

Starting your program early is important. Call your Du Pont distributor or custom applicator now for complete details on Du Pont industrial weed control products and programs.

With any chemical, follow labeling instructions and warnings carefully.

DU PONT
REG. U. S. PAT. OFF.

INDUSTRIAL HERBICIDES

HYVAR® X bromacil weed killer
HYVAR® X-L bromacil weed killer
AMMATE® X weed and brush killer
KROVAR® I weed killer

Government News / Business

Loft's Pedigreed Seed Co., Bound Brook, N. J. has sold its interest in Stover Seed Co. to David L. Knutson, VP and General Manager of the company for 4 years. Knutson says there will be no changes in the operation.

Zurn Industries, Inc. has completed the acquisition of Golf Lynx, Inc. of Paramount, California in exchange for Zurn Common Stock. Lynx will continue to operate with its present management under the direction of Carl Ross, president and founder, within the Zurn Leisure Products Group.

The Farm and Industrial Equipment Institute has expressed concern that the Operational Safety and Health Administration will approve non-uniform state plans and regulations in the area of equipment safety. Rollover protective structures (ROPS), guarding and shielding have been cited. This could cause problems with goods that flow in interstate commerce.

Environmental Protection Agency has announced a proposal to set new air pollution emission standards for 1975 model light duty trucks. Included are pickups and panel trucks. This action is the result of a court order to EPA to remove light duty trucks from the same category that includes passenger cars. The new category requires by 1975 a 90 percent reduction of carbon monoxide and hydrocarbons from the 1970 model levels, according to the Clean Air Act amendments of 1970.

Cal-Turf, Camarillo, California has announced plans to expand into Arizona with complete sod farm and sales office facilities. This brings the total Cal-Turf facilities to nine.

Kalo Laboratories, Inc., Kansas City, Mo. has announced acquisition of Colloidal Products Company, Petaluma, Calif. Kalo manufactures inoculants and micronutrients which enhance growth; Colloidal makes adjuvants. Sale price was not disclosed.

Arbor Day, April 27, or the last Friday in April, will be observed across the country in various ways this year. Last year President Nixon made an official proclamation which was duly recorded in the House and the Senate. It was only for one year, however. So H. J. Res. 277 Joint Resolution has been submitted to make this date official. At presstime, the resolution had not been signed by the President. Meanwhile, the New England Chapter, I.S.T.C. has made plans to distribute hardwood seedlings to school children. The program is designed for six New England states. For more details about this program contact Tom Williams, Chairman NEISTC Arbor Day, Christmas Tree Ridge, Cheshire, Conn. 06410 (203 272-0391).

Use of coiled nylon brake tubing for connections between towed and towing commercial motor vehicles operated in interstate commerce has been approved by the Federal Highway Administration. Effective use date is Oct. 1, 1973.

FYLKING KENTUCKY BLUEGRASS

U. S. Plant Patent 2887

Where in the north temperate zone of the world can you find so devilishly good a grass as Fylking Kentucky bluegrass lawn? This fine-textured, low-growing, multiple tillering turf has everything going for it. A good mixer, more disease, drought and weed resistant, green earlier and later than others, Fylking can be cut low as 3/4 inch, even 1/2 inch and thrive. Less mowing, less watering mean less time and money expended. Internationally tested over 12 years, Fylking is devilishly hard to match. Ask for 0217® Brand Fylking Kentucky bluegrass at your local wholesale seed distributor.

Another fine product of Jacklin Seed Company
Division of The Vaughan-Jacklin Corporation

For More Details Circle (101) on Reply Card

Get rid of unwanted green growth before it cuts into your profits.

The weed onslaught is just about universal.

An expensive headache.

For utilities, railroads, highway departments, the petroleum industry and industry in general.

But there is a way to control that costly green tide—with Tandex® herbicide.

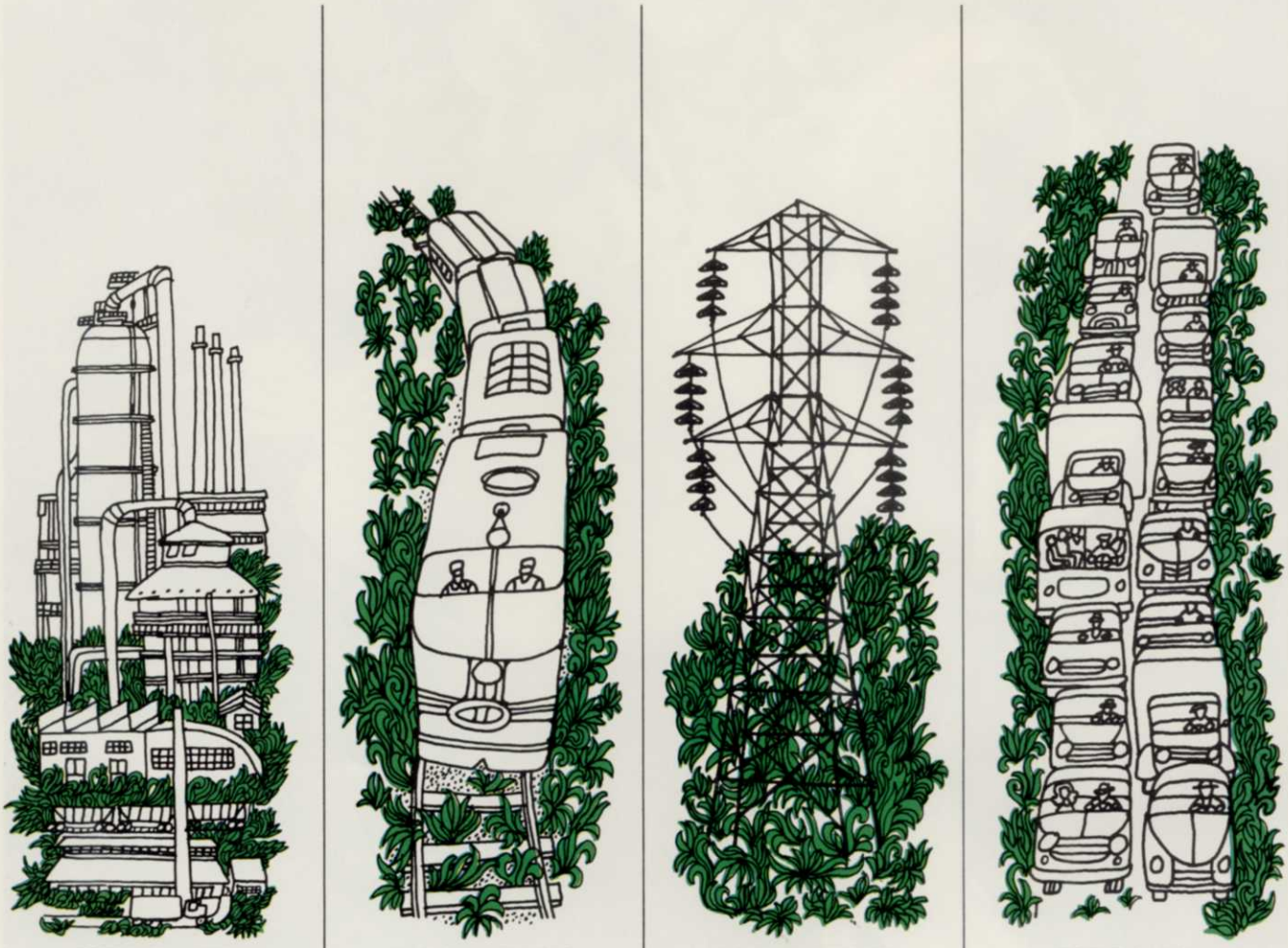
It's a urea-carbamate compound that gives outstanding extended control over a range of weeds and grasses.

But it's more than weed control.

It's brush control, too. If you've got to get rid of really tough brush and woody vines, Tandex gets the job done.

You can spray Tandex or apply it in dry granular form.

Either way you use it, you'll control that costly green tide.



FOR INDUSTRY | FOR RAILROADS | FOR UTILITIES | FOR ROADS

TANDEX HERBICIDE

INDUSTRIAL CHEMICALS DEPT.
NIAGARA CHEMICAL DIVISION
MIDDLEPORT, NEW YORK

Tandex® is a registered trademark of FMC Corporation

For More Details Circle (140) on Reply Card

He's got a horse... Wheel Horse of course!

Wheel Horse has the right garden tractor to handle those tough jobs. They're the four-season, all-purpose tractors. They take on all mowing jobs up to big commercial areas and leave them with the professional look. A complete line of attachments is available to meet your needs. Attachments for fertilizing lawns; removing snow, dozing snow or dirt; vacuuming or sweeping leaves and many others. Wheel Horse gets you on and off the big jobs fast with power and time to spare. And for you owner-operators, that means more profit.

Need equipment for light construction or a landscaping job? Wheel Horse can help you! We have bucket loaders for back-filling, or dirt removal; dozer blades for leveling lawn beds and foundations; mid-mounted grader blades for landscaping and driveway leveling. These are just some of the 42 different allied attachments that are available from most authorized Wheel Horse dealers.

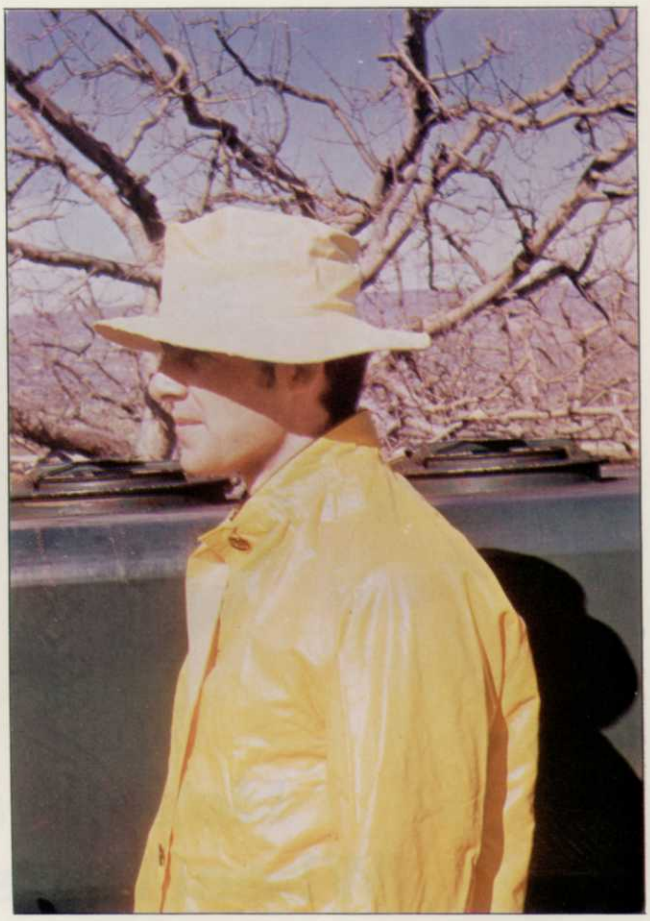
Wheel Horse offers you a choice of 11 garden tractor models, ranging from 8 to 18 HP for 1973...backed with 25 years of experienced craftsmanship. Wheel Horse offers six automatic and five standard transmission models. See your service-oriented Wheel Horse dealer today. He's listed in the Yellow Pages under "lawn mowers." Write for your free copy of our new 1973 catalog.

WHEEL HORSE
Lawn and Garden Tractors

Wheel-Horse Products, Inc., Dept. WTT, 515 West Ireland Road, South Bend, Indiana 46614

For More Details Circle (111) on Reply Card

Rubber gloves should be worn, especially when handling concentrate pesticides. Leather shoes dry out and crack with repeated exposure to spray, allowing penetration by toxic materials.



Good protection from downward spray drift is afforded by wearing a waterproof wide-brimmed hat. Lighter-colored jackets reflect more heat than dark colors.

Workers Should Be Protected From Pesticide Exposure

By **HOMER R. WOLFE**
Chief, Wenatchee Research Station
Environmental Protection Agency
Wenatchee, Washington

EVEN THOUGH there has been some progress in recent years toward the development of pesticides that are not only low in toxicity to warm-blooded animals but also relatively nonpersistent in the environment, we should not expect such changes to be accomplished in a very short period of time.

Replacement of certain persistent so-called "hard pesticides" with compounds that are relatively nontoxic to all but the target pest is a difficult, costly, and time-consuming order. In fact, this may never be accomplished to the complete satisfaction of all concerned. Thus, for some time to come we may find it necessary to utilize compounds that are more acutely toxic to man and animals than we would eventually like to see developed.

A good example is the utilization of the more highly toxic methyl parathion as a DDT substitute in certain crop uses.

Also, a few of the new relatively nonpersistent compounds that have reached the point of registration during the last few years have acute oral LD_{50} values of less than 50, which indicates that they are highly toxic. With this in mind, we should not become lax in our concern about protection of the worker.

Even though experience has shown that more caution is warranted when working with highly toxic compounds, the need for protection from exposure to less toxic pesticides should not be ignored. Unless there is good evidence that a compound will not have any subtle adverse effects as a result of prolonged exposure, it does not seem wise to allow excess exposure even to pesticides that are considered relatively nonhazardous.

Much of the pesticide usage today involves insecticides, fungicides, and herbicides. The acute toxicity of the organophosphorus compounds that are used primarily as insecticides is, on the average, somewhat greater than that of most other types of pesticides. This class of compounds has caused many poisonings in pesticide applicators.

Most of the newer synthetic fungicides are less acutely toxic to man than other pest control compounds. However, certain fungicides may occasionally cause local irritations or

(continued on page 36)

Trees on the way: Be ready with the JD310

Here's a 6-ton machine built to handle your largest root-ball plantings from transporting to digging holes. And it handles topsoil, too, from stockpiling to final grade. For truck loading, you have a 10-foot loading clearance and 3,400 pounds of lifting power under control of a single lever.

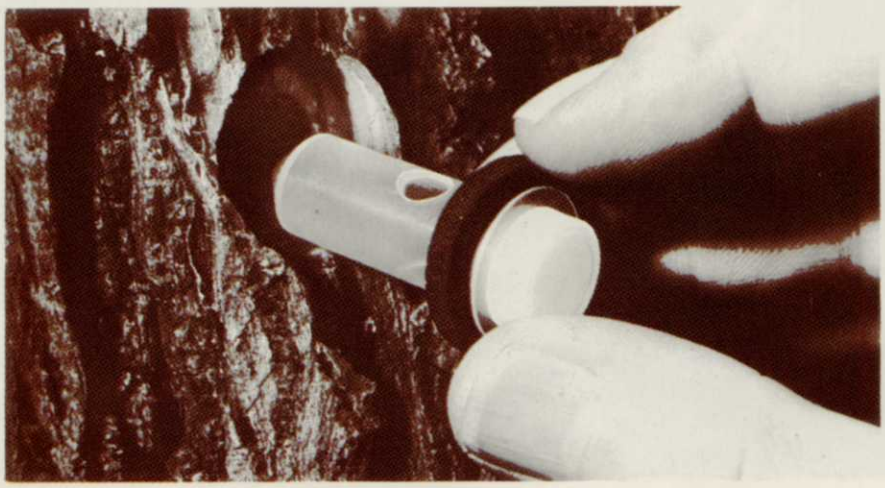
Fifteen feet of backhoe digging depth installs your deepest drainage tile—a long 17-foot reach buries your sprinkler system quickly with fewer moves. And for working in tight quarters, it will fit under an 8-foot overhang and its power steering gives you positive control in the softest soil.

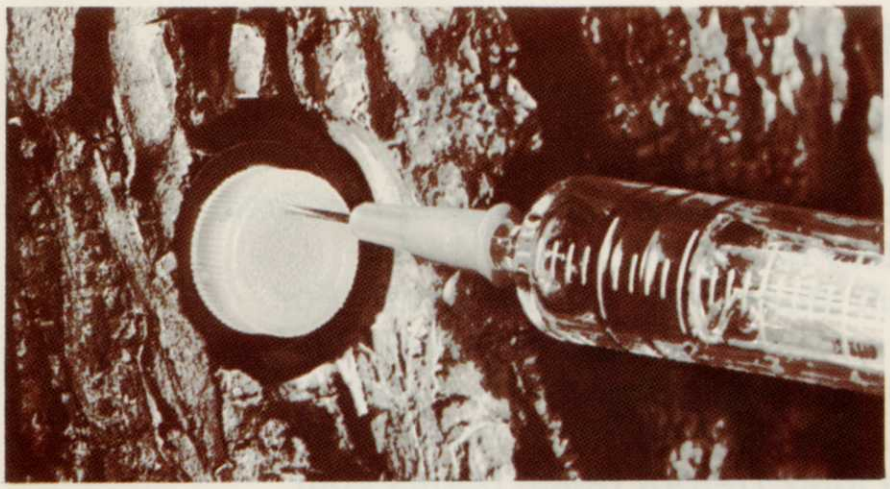
Hydraulic direction reverser and 2-lever backhoe control are some of the other features you should know about. For the facts on how this unit can add versatility and bidding power to your operation, plus the service, parts, and financing that are available... see your John Deere dealer listed in the Yellow Pages. John Deere, Moline, Illinois.

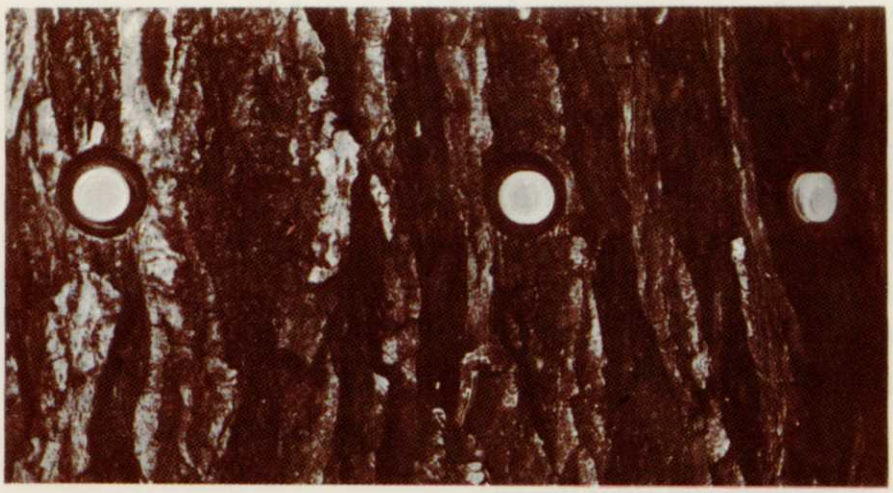
JOHN DEERE

Tractors • Mowers • Maintenance Equipment

For More Details Circle (110) on Reply Card







Tree

Sophistication in tree injection systems is becoming more evident as scientists continue to probe for ways to control Dutch Elm Disease.

Presently, at least a half-dozen systems are being tested or are in commercial use across the country. Each is a variation on the general theme that medication (chemicals) placed within the tree has a better chance of controlling the disease than foliar sprays, sump, collar or other methods of chemical application.

One of the newest techniques to be introduced to arborists is SIReservoir, manufactured by Systemic Implant Reservoir Corporation of Madison, Wisc. It was developed by John Reynolds, Ray Carroll and Dale Norris whose interest in tree care and DED span a total of 80 years of combined experience. All three have worked on chemical treatments, sanitation, rootgraft control and combination measures for suppressing DED.

SIReservoir is described as simple, effective, refillable and economical. Handy is another word, because injectors to treat six to ten trees can be carried easily around in a jacket pocket. Moreover, although a certain degree of care must be exterted, an unskilled arborist quickly becomes skilled after injecting two or three trees.

Here's how the system works. Using a ¾-inch spade bit, a counter sink hole is drilled to the level of smooth bark surface. This forms an outer lip which the visable part of the injector casing fits snugly. A ½-inch bit finishes the job. Bit is in-

A ¾ inch spade bit is used to counter sink hole thru bark (top left). Hole into xylem tissue is made with ½-inch bit. SIReservoir injector is inserted into tree (2nd from top). Using hypodermic, chemical is placed into injector (2nd from bottom). Completed application (bottom left) show injectors spaced at 5 inch intervals.

Injection Systems

Modern Clinical Method To Healthier Trees

serted into the first hole and drilled to a two inch depth. Hole is then cleaned of shavings.

The next step is to place a SIReservoir injector cartridge into the hole. The bullet-shaped cartridge of plastic construction has release holes on two sides and these should be always in a vertical attitude. Sap moving in the xylem tissue enters from the bottom hole and exits out the top.

Once the injector is in place the last step is filling it with chemical. Each injector holds up to four milliliters (ml) of liquid per filling and can be refilled as often as needed. A standard syringe with a 19-gauge hypodermic needle is used as the injector.

Corporation officials advise that SIReservoir should be spaced at five inch intervals on the trunk circumference.

Last year several thousand elms were subjected to this new system. Data from laymen and profesionals confirmed the practical effectiveness of the system when used as instructed.

Like other systems reported in WEEDS TREES AND TURF, SI-Reservoir logically and scientifically has all the necessary apparatus to work. While it may be said that some arborists are not in favor of small tree wounds (drilling) research conducted by the Illinois Natural History Survey indicates that the inflicted damage is minimal and the tree quickly develops callus tissue in this area. (See WTT, Aug. 1972, p. 16 for related story)

Additionally, a tree 30 inches in circumference would require six injector units. The tree tissue removed by drilling one hole is about 3½ square inches. Multiplying this by six gives a total of about 21 square inches of removed tissue. In comparison to the total volume of the tree, this is not much more than a needle pricking a man's arms.

To date, Benlate benomyl fungicide is the only product with Federal registration to "aid in the control of Dutch Elm Disease caused by the fungus *Ceratocystis Ulmi*." Depending on who is speaking, researchers around the country are talking both hot and cold on the effectiveness of this material. Generally, all point to

(continued on page 50)

An Asplundh Chipper makes you more money than you bargained for.

Drop us a note for more detailed literature and specifications. Asplundh Chipper Company
50 E. Hamilton Street, Chalfont, Pa. 18914

ASPLUNDH

For More Details Circle (115) on Reply Card

Interna

Our 2400A Lo-Boy:

Built for mowing— from the grass up.

And just what is a *mowing* tractor?

A good one is squat and compact, clings to slopes without slipping. It's nimble. Brakes, turns on its own axis and steers like a sports car.

It's geared for every speed from creep-mowing next to fences and obstacles up to nearly 20 mph highway transport. It's versatile—works with a rotary mower, ganged reels, or flail in the rear, and at the same time can handle a cutterbar with its side PTO.

And because grass just won't wait, it's built with the power and strength to get big mowing done in a hurry. Without breakdowns. With a minimum of maintenance.

That's a *mowing* tractor. That's our 46 hp 2400A Lo-Boy.

Your International dealer has all the exact specs, including 9 ft. turning radius; hydrostatic power steering; 8-4 synchromesh shift-on-the-go transmission with Hi-Lo range and straight-line shifting; independent rear PTO, side shaft optional; big 11-inch Dyna-Life® clutch; wet disc hydraulic brakes—a package no other mowing tractor on the market can match.

Phone your dealer soon and let him prove it on your own turf.

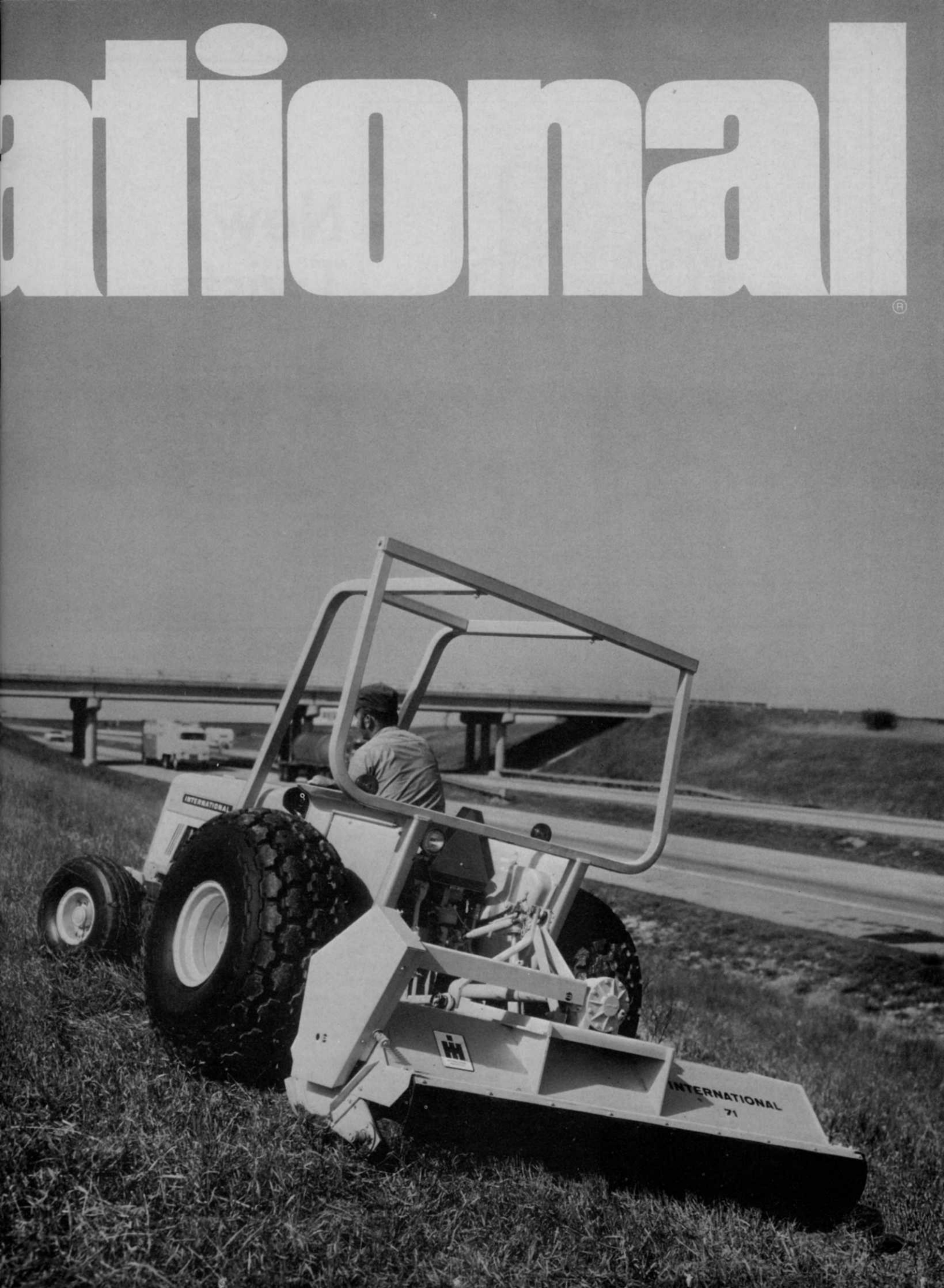
We keep getting better at our business to get more of your business.

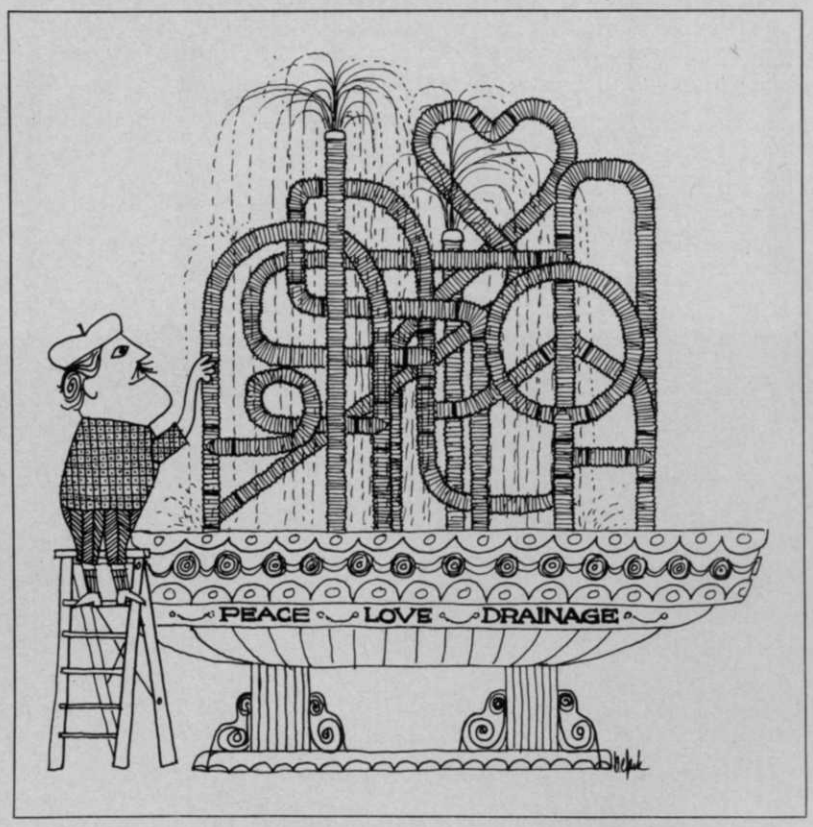
And keep it.

INTERNATIONAL HARVESTER

For More Details Circle (148) on Reply Card

ational®





New Twists In Drainage

By EUGENE M. WITTER
Hancor, Inc.
Findlay, Ohio

AFTER several years of testing in different types of applications, turfgrass research centers in universities across the country have realized that the old standard of a four inch diameter in drainage tubing may no longer be necessary.

The possibility of using two inch laterals for football fields, golf course drainage, baseball diamonds, tennis courts and other recreational and outdoor activity areas has been extensively evaluated. Drainage tubing manufacturers like Hancor, Inc. began to take note of these developments and started to study the type of tubing needed to make two inch installations practical for general use (excepting agricultural drainage where four inch is the primary size used).

The Purr-Wick golf course green construction design and the PAT System football field drainage design were made using two inch drainage material. However, during the inception of these two designs, nothing was available on the market that did not require a specific filtering device wrapped around the pipe to prevent silt buildup.

Then too, on golf courses where traps and other sandy areas are encountered, it was necessary to wrap the pipe with a sand filter (fiberglass, tar paper, etc.) to avoid a buildup in the drain lines.

In 1970, Hancor helped eliminate these drawbacks by developing a sand filter slot design for two inch corrugated tubing, as well as a wide slot design for use under heavy soil conditions.

Today, two-inch tubing means easier installation for dozens of projects, partly because of its light weight (approximately 72 lbs. per 500-ft. roll). Installation costs are further reduced because a three-inch trench will accommodate the 2⅜ inch outside diameter of the tubing. Previously, installations with larger diameters (specifically 4 inch) required a trench at least six to eight inches in width. Therefore, if the job was done on existing landscaping, it meant considerably more displacement of soil in digging and installation than with two-inch tubing in its narrower trench.

In many of these drainage applications stone or gravel backfill is called for. The amount required to backfill a three-inch trench with two-inch tubing in the bottom is, of course, half or less the quantity needed for the four-inch pipe's deeper, wider trenches.

GOLF COURSE LABOR SAVER

Two-inch tubing is being used in original golf course drainage for laterals within a herringbone design. With four inch as the main line, the two inch can be safely and effectively used in lengths of up to several hundred feet in place of the larger tubing. Golf course greens, sand traps and fairways that undergo repair drainage can utilize two-inch tubing with less disturbance to the existing landscape, thereby making the course playable more rapidly after construction is completed.

In regard to golf course applications in general, it is most important to remember that irrigation lines and drainage lines need to be planned together; an irrigation system can only be as functional as the drainage system adjoining it. The entire design must interact, not only to make the best use of irrigation water, but also to drain excessive water after heavy rainfalls and facilitate faster dry-up so that players may enter the course without delay.

DRAINAGE FOR SPORTS FIELDS

Modern day football fields with synthetic turfs have been the target of some controversy. One factor often brought out is the tendency for heat to radiate from the surface of artificial grass. Other characteristics include artificial turf's solid base compaction and inherent drainage difficulties. Consequently, a great deal of work has been directed toward improving artificial turf's practicality with respect to these various situations.

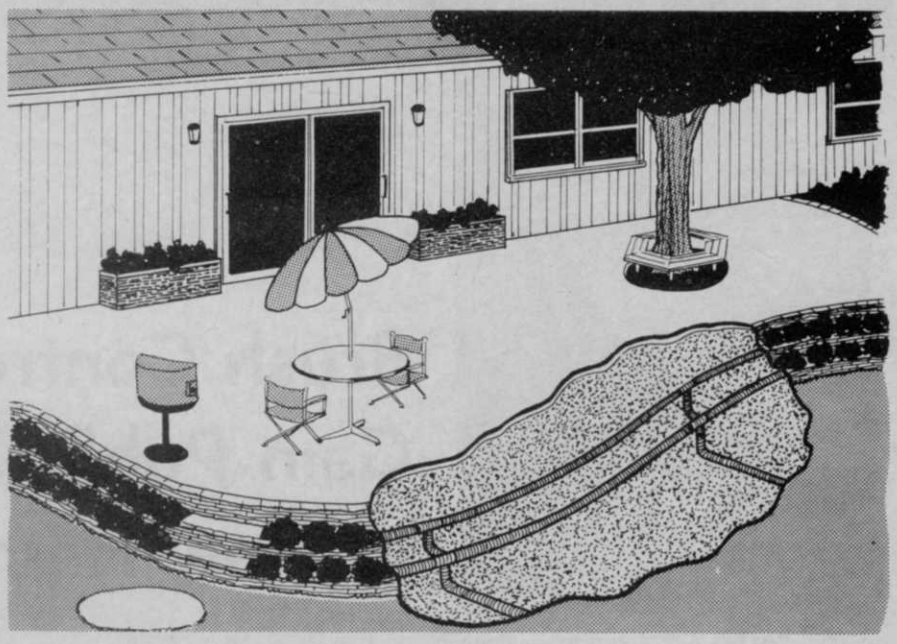
The development of the "Pat System" by the Purdue University Agronomy Department has shown that it is possible to construct a live turf athletic field utilizing a sand base, with proper drainage and subirrigation provided through a pump system that removes heavy rainfalls through the soils.

In dry seasons or during playing times, water may be pumped back into the sub-surface soils. Under frozen conditions, the system can be used to warm the ground from underneath, providing players with consistent footing on a flat, live turf field. Just think of the possibilities for changing existing sports facilities in high school, colleges and professional arenas.

Many modern techniques and equipment involving mowing, aeration and turf maintenance are being employed today. To be truly effective, all of these new methods require a good base—and that base is efficient drainage. Two-inch Turfflow Tubing is being used in commercial and residential landscape plantings, as well as in lawn drainage, tree plantings and any other areas of potential application where it is capable of handling the water present at heaviest rainfall.

University studies undertaken throughout the United States wherever four-inch tubing had been used in recreational, athletic and general landscaped areas have shown that four-inch tubing generally does not run full, even during the heaviest rainfalls. These studies would clearly indicate that two-inch tubing, while running full, can serve the same purpose with lower installation costs, easier handling and less disturbance to the existing landscape.

We should note that good drainage systems are essential not only for heavily saturated areas, but for limited rainfall zones as well. Underground drainage tubing offers an excellent means of controlling local water tables and carrying off any excessive moisture.



OTHER USES

Foundation plantings also require good drainage. Generally we have found that none is installed specifically for the purpose of taking care of the plants. Usually, the foundation drainage system itself, three to four feet underground, is required to take care of subsurface drainage only. In many such cases, there may also be compacted clay soils present to slow the water movement. One easy method of giving life to these plantings starts with digging a small trench twelve to eighteen inches deep. Place wide slot two-inch tubing in the trench and backfill with gravel to near surface level so that water leaches into the gravel quickly instead of ponding around plants to cause shallow root growth and plant deterioration.

Commercial parking areas with landscaped islands are a constant worry to the landscaper who plants them and must guarantee them for at least one year. Often no provisions have been made during the construction to drain these areas

(coninued on page 39)

Capsule History of Drainage

The first instances of planned drainage systems are obscured in antiquity, but we do know that water embankment and irrigation systems were built by the ancient Egyptians and Babylonians many centuries before the birth of Christ.

Drainage as we know it in round tile form came to this country from Scotland in about 1838. The original tile was actually a horseshoe-shaped tile from which many different patterns and variations evolved over the next 100 years.

During that period, it is said that much of the tile used in the eastern and northeastern U.S. was made in diameters of from one to two inches for laterals and four inches for mains. In the late 1880's, the four inch diameter was adopted as the standard size for laterals, due to its ease of manufacture with the machinery available at the time.

Tile proceeded to be manufactured in four inch diameter for many years from clay and other similar materials. Concrete tile was introduced in the 1900's, followed some years later by the development of long, rigid plastic-type pipes. These basic drainage materials have been used throughout the U.S. in subsurface applications for agriculture and athletic facilities.

In the mid-1960's corrugated plastic drainage tubing, flexible and lightweight, was beginning to show its influence on the U.S. drainage market. Research conducted with the new tubing showed it to be satisfactory as a replacement for other types of materials. And by the late 1960's, corrugated tubing's light weight, flexibility and ease of handling had won ready acceptance.

Author inspects Christmas trees along right-of-way. Tree management program practically eliminates maintenance and produces profit for easement landowners.

Brush Control Programs Gain Public Support In New Hampshire

By S. N. MACRIGEANIS
Public Service Co. of New Hampshire
Forester

MANAGERS' 10-SECOND SUMMARY: *Switching from fuel oil to bromacil brush killer is one of four ways PSNH gains public support for vegetation maintenance program on transmission rights-of-way.*

PEOPLE readily accepting a transmission right-of-way sounds about as far fetched as linemen enjoying an ice storm. But, it's happening in New Hampshire. And, it's happening to Public Service Co. of New Hampshire with virtually all rights-of-way on easement land. Not only have environmental outcrys fallen off considerably, but people in general are beginning to appreciate the extra values of carefully maintained rights-of-way.

This turnabout in public opinion didn't happen overnight. It took a great deal of planning and hard work on four major fronts:

First, we had to develop chemical brush control programs that not only solved our maintenance problem, but increased wildlife populations in the bargain.

Second, we had to come up with a way of keeping our foliage spray treatments out of the public's view.

Third, we had to find a better way to control resprouting stumps. Fuel oil had to go because every use brought on a rash of complaints. The availability of a new chemical brush control compound — Hyvar XL bromacil weed killer — provided the answer here.

Finally, we had to discover ways of encouraging the public and our easement neighbors to take advantage of our rights-of-way.

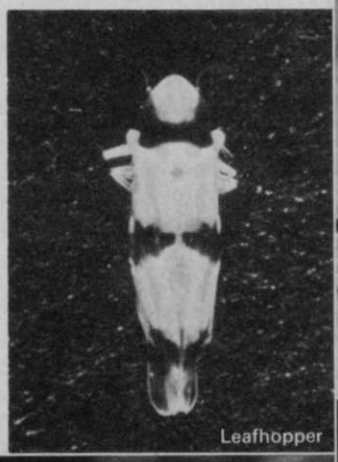
Basal application of Hyvar XL bromacil is made in the fall by "Bucky" Edmondson of Bartlett Tree Co. Forester Macrigeanis checks the technique. Only 7 to 10 ounces of bromacil and water is needed to control 2-inch stem of most brush.

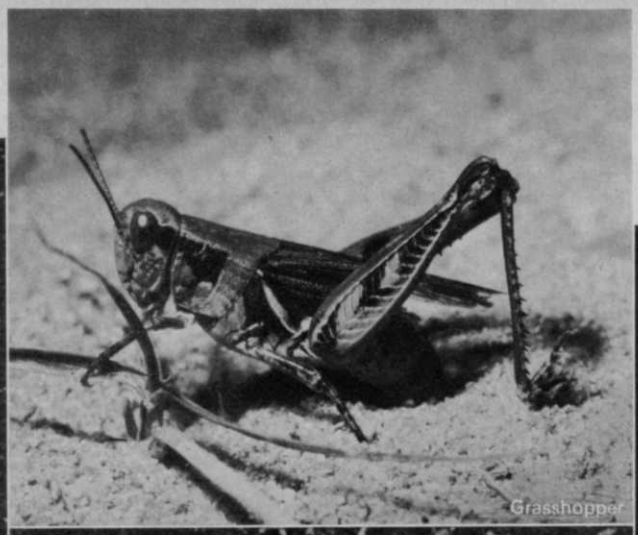
TOO MUCH OF A GOOD THING

Contrary to what many people believe, New Hampshire's greatest need is for more open areas, *not* more trees. It's true. There are nearly three times as many forests and woodlands today as there were in the early 1800's. Back then, land in our state was mostly cultivated. New Hampshire was a major grain producer with less than 35 percent of its land in trees. Now the State is nearly 90 percent forests and woodlands, and this has caused a major reduction in wildlife because of a loss of open areas for food, forage and nesting.

So, our goal of increasing wildlife along our 22,000 acres of rights-of-way first began with a change in our land clearing practices. Instead of cutting and burning brush and trees,

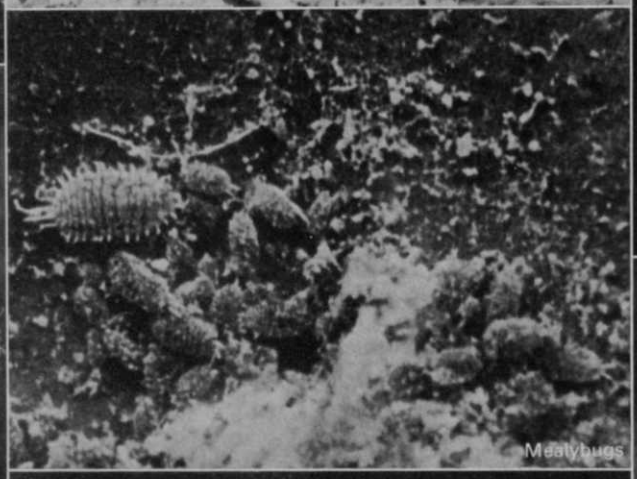
(continued on page 30)


Leafhopper

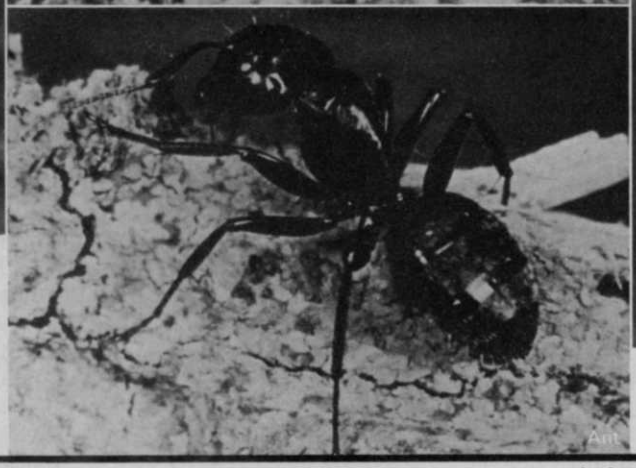

Grasshopper

Hairy chinch bug

Cutworm


Mealybugs

Bagworms


Ant

Ag-Organics Department, Midland, Michigan 48640

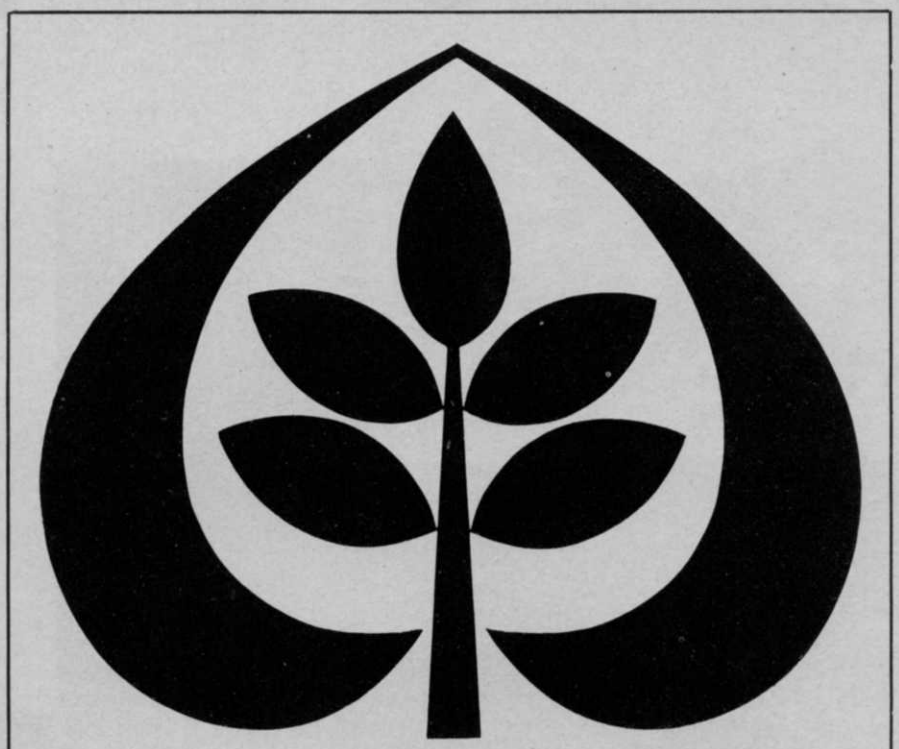
These are only seven of the turf and ornamental pests Dursban controls. If we had more space, we could show you another seven. Like sod webworms, brown dog ticks, earwigs and Hyperodes weevils in turf. Or ornamental plant pests like mites, spittlebugs, exposed thrips, white flies and many more. But our point is, DURSBAN* insecticide is the choice of professional lawn spraymen when they need to get the job done. DURSBAN insecticide is effective on a wide variety of insects—including resistant strains. And it's effective in a wide variety of applications. It's economical because a little goes a long way. It's non-phytotoxic, and it is biodegradable. So, if you haven't tried it yet, it's about time you did. Just remember to read the directions for use and follow the precautions for safe handling on the product label.

*Trademark of The Dow Chemical Company

DOW*

DOW CHEMICAL U.S.A.

For More Details Circle (127) on Reply Card



National Arborist Association Report

Nearly 100 professional arborists and guests journeyed to Scottsdale, Arizona in mid-February for the 35th annual meeting of the National Arborist Association.

Scottsdale isn't exactly the "fun and sun" center of the southwest, but it's a great place to shed the mid-winter blues. Unfortunately for a few, rain spoiled several days of poolside suntanning planned by arborist wives while husbands met.

The business at hand for this year's meeting was multi-fold. Of particular note were reports from various committees and the president's address.

Ed Irish, Charles F. Irish Co., Inc., Warren, Mich. reported on the activities of the educational committee. He said that the Home Study Program continues to show progress. In 1972, 34 members and 96 nonmembers enrolled in Series I of the course. Series II enrollment accounted for 44 members and 26 nonmembers. Completions to date for Series I are 149 and for Series II 16.

Erik Haupt, The Haupt Tree Company, Sheffield, Mass., next reported on the industry statistical survey. He said that although much information was received, the results compare favorably with those previously published. The industry statistical survey is a means whereby rates and charges for various arboricultural jobs are published for a given geographical area.

In addition to this survey the NAA has also published a Professional Fact Sheet about its members. Here are some of the highlights: 14 percent have been in business 1-10 years; 25 percent from 11-20 years; 25 percent from 21-29 years; 7 percent from 30-39 years; and 26 percent from 40-50 years.

The greatest amount of business comes from pruning. Twenty-eight percent of gross receipts is in this area. Next comes spraying with 17 percent; tree removal, 12 percent; utility line clearance, 11 percent; landscape, 9 percent; fertilizing, 6 percent; planting, 5 percent; and moving, bracing, cavity repair and diagnosis, each 2 percent.

About 10 percent of the NAA members reported business volumes less than $50,000, 23 percent between $50,000 and $100,000, 23 percent between $100,000 and $200,000 and 25 percent between $200,000 and $500,000.

Eighty percent of the members are engaged in an employee safety training program and 98 percent operate their firms in one to five states.

Boyd Haney, Boyd Haney & Sons, Inc. Franklin Park, Ill. reported that the current membership of NAA is 233, an increase of 18 members over last year. He said that the association gained 22 new members and lost 15 due to resignations and/or nonpayment of dues. He made particular note of the addition of The Davey Tree Expert Company, Kent, Ohio who became a member during the annual meeting.

Robert Felix, Harder Services, Inc., Hempstead, N.Y. and president of NAA highlighted the morning session in a wrapup of NAA activities for the past year. "This year we became sustaining members of the International Shade Tree Conference," Felix said. Another highlight was the planting of a tree at the White House in commemoration of Arbor Day. In addition NAA published a new membership roster, cooperated in the preparation of a consumer article for Good Housekeeping Magazine, manned a booth at the I.S.T.C. convention, sold 56 thousand brochures as a member service, created an OSHA manual for arborists, published a professional fact sheet, and developed guidelines for a new code of ethics.

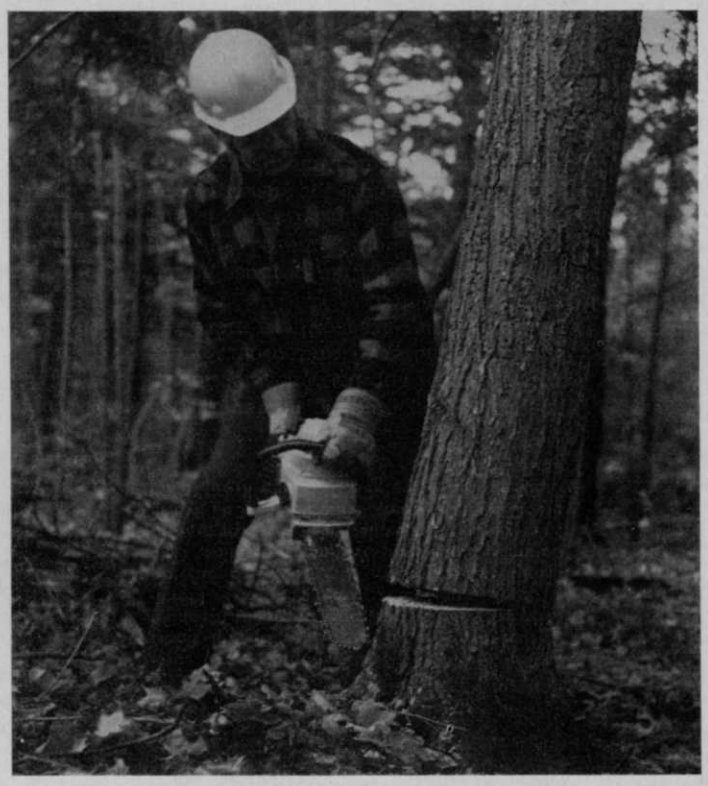
Felix said that greater member participation is needed in NAA to make it command the leadership role in the field of arboriculture. He pointed out that this comes through member cooperation, member education, member unification and member identification of how the organization meets the needs of the individual.

Following the business meeting Kenneth Kirk, Shield Shade Tree Specialists, Clayton, Mo. and Walter Money, Guardian Tree Experts, Rockville, Md. spoke on "Taking Your Image Into the Buyer's Home." Kirk pointed to these rules in creating an image with the customer: 1. crews alert, 2. clean shaven, 3. a uniformity about dress and appearance, 4. have the crew on the job on time. He said it was important for the client to see the same foreman each time service is rendered. "If we are going to try to sell NAA, we've got to get the NAA decals on our equipment and on our stationery letterheads. Advertising in the Yellow Pages that we are members of NAA helps, too," he said.

"The best advertising we get is a job well done," commented Walt Money. Each year Money paints his

(continued on page 41)

NOW
Pioneer 1200A
makes things even easier



with automatic oiling.

The Pioneer 1200A now comes with automatic oiling and manual override for even the toughest cutting situations. And the ruggedly reliable Pioneer 1200A has earned its reputation among cutters everywhere with such features as wide spaced handles for better balance, greater safety, and more leverage; sure-start choke; convenient finger tip controls and throttle lock; no-stall, all-position carburetor. It's a great performer at a new low price!

Now from only: $184.95

The Pioneer 1200A is specially designed for the professional . . . in orchards, on the farm, for light pulpwood cutting and for the casual user who requires a little more muscle than a "hobby class" machine. Make things easier on yourself with the Pioneer 1200A, clear cut choice of woodcutters. For clearing. For cutting.

PIONEER
CHAIN SAWS

Outboard Marine Corporation
1952 Cushman Drive
Lincoln, Nebraska 68501

Making things easier.

For More Details Circle (109) on Reply Card

72-129

New officers of WSSA are: (l-r) F. W. Slife, Univ. of Ill., exec. secretary; E. L. Knake, Univ. of Ill., president-elect; R. P. Upchurch, Monsanto Company, past-president; E. G. Rodgers, Univ. of Florida, president; R. D. Ilnicki, Rutgers Univ., secretary; and C. R. Swanson, USDA Agr. Research service, vice-president.

WSSA REPORT

Scientists And Industry At Work Together

FOR three days put 700 weed scientists into one hotel, mix thoroughly with 224 technical papers accented by 11 sections and what do you have? The Weed Science Society of America's 13th annual meeting.

This year's meeting was in Atlanta and more than one weed scientist was seen soaking in February's warm Georgia sunshine while trying to forget about the winter chill back home.

The theme this year was "A Glance Backward — A Look Forward," and there was a note of this portrayed throughout most of the papers given.

Society president, Dr. R. P. Upchurch delivered a challenge to delegates in his president's address. "To those of us who are concerned with the scientific aspects of weed problems and their resolution there is unquestionably the need to bend every effort to understand the nature of weeds and the role which they play in human affairs," he said. "Our subject is a difficult one and individually we cannot but help feel inadequate for the task which confronts us. Only by banding together as a group of dedicated professionals can we hope to meet the obligations which we must choose for ourselves and fulfill on behalf of society."

Upchurch pointed out that "more energy is said to be expended for the control of weeds than in any other human endeavor. Millions of people are chained to a sub-human level of existence because of weeds."

He cited the challenges of the future—maintain and improve a professional approach, participate in the setting of courses of action for the environment, and speak out in favor of the proper use of a properly managed technology.

President Upchurch spoke of the Society's achievements over the past year. Active committee involvement; liaison support for the Council for Agricultural Science and Technology and other organizations; steady contact with the Environmental Protection Agency, USDA and other governmental agencies; and, an active awards program for research, teaching and extension were mentioned as major accomplishments.

EPA assistant administrator, David D. Dominick next spoke on "improving agriculture and the environment." He highlighted the enviable history American agriculture has achieved and said that even though total number of acres is down, production is up. The increases have been due to technological advances. Better farming, new equipment, new hybrids, lower farm failure rate, farms have become large businesses and the role of chemicals—all have helped productivity, he said.

"The one practice which remains the most controversial today is the use of chemicals for insect and weed

(continued on page 28)

EPA Liaison To WSSA

Dr. Jake McKenzie, chief of the pesticide program in the Environmental Protection Agency's San Francisco regional office has been named official EPA liaison with the Weed Science Society of America. The announcement was made during the 13th annual meeting in February.

McKenzie has been a member of WSSA since 1964. He has a B.S. degree in farm management from Edinburgh University, Scotland and M.S. and PhD. degrees in crop science from Oregon State University. He studies under W. R. Furtick, a past president of WSSA,

In making the announcement, David D. Dominick, EPA assistant administrator said, "I am certain that by working through Dr. McKenzie this organization can be assured that its views will be made known to EPA, and that you will have full knowledge of our progress in implementing the Federal Environmental Pesticide Control Act."

Improve your maintenance game

With the right clubs, a golfer can cut strokes from his game. And add power to his swing.

With the right maintenance products, a caretaker can improve his performance, too.

Dolge makes everything you need to achieve the best results, outdoors and in. With less labor. At less cost.

For example: *Tote* can kill any weed it hits; is non-poisonous. *E.W.T.-Plus* is a selective weed-killer. *Penetrate* improves soil porosity. *Lake Dye* colors ponds blue. *Anti-Dessicant* protects turf from drought and snow damage. *Boost* detergent-degreaser cleans machinery. Dolge also supplies famous fungicides.

Whatever your grounds-and-clubhouse maintenance problems, call on Dolge, the *Complete* Caretaker.

DEPENDABLE
DOLGE
WHERE CLEANUP IS A SCIENCE

The C. B. Dolge Company
Westport, Conn. 06880 • (203) 227-9591

Outdoors & In—Dolge. The Complete Caretaker

For More Details Circle (128) on Reply Card

Ohio Short Course Draws 1850 Delegates

Over 1850 persons attended a five-day meeting in January of the 44th annual Ohio State University Short Course for Arborists, Turf Management Specialists, Landscape Contractors, Garden Center Operators and Nurserymen.

Meeting at the same time was the 31st annual meeting of the Ohio Chapter, International Shade Tree Conference and the 65th annual meeting of the Ohio Nurserymen's Association.

Speaking on the topic, "Diagnosis of Tree and Ornamental Plant Troubles," Dr. Dan Neely, Illinois Natural History Survey, Urbana, Ill. said that industry and population growth have increased the problems relating to trees. Survival of trees and other vegetation is now dependent on the care and maintenance rendered by people.

Neely said that to accurately diagnose tree problems three things are needed, the ability to observe, simple tools and background knowledge. He offered these questions to arborists and others in helping to solve a tree problem: 1. What type of abnormality exists? 2. Is the condition general? 3. Is only one species or genus affected? 4. Is the problem occurring only in one tree or is it widespread through a certain area? 5. Is necrosis complete or partial in the affected area?

Check for mechanical, chemical or thermal injury, said Neely. Leaf spotting, aerial drift, or uptake of soil-borne chemicals must be taken into consideration. Physiological diseases are also important. Deficiencies in water, nutrients, oxygen, and other essential materials can bring on tree problems.

Lastly, Neely said to check out the possibility of pathogenic diseases. These are the most difficult to diagnose.

Erik H. Haupt, The Haupt Tree Co., Sheffield, Mass. discussed spraying techniques and application methods. Noting that spraying can be hazardous, the arborist cautioned that proper chemical selection and spraying mixture was important. Spraying techniques must be effective, he said. No one uses exactly the same techniques as another. Each must be custom designed to fit the needs of the operator and the job situation. Nevertheless, equipment must be in top operating condition at all times.

Dr. John A. Weidhaas, Jr. of V.P.I. and Dr. E. B. Himelick, Ill. Natural History Survey tackled systemic insecticides and fungicides. Systemic chemicals can make important contributions to desease and insect control if the applicator understands their use, said Weidhaas. Little has been done to more fully understand the role of systemics, however. Use rates, time of application, selection of the right material and others were pointed out as areas where more research is needed.

Officers of the Ohio Chapter, ISTC are: (seated l-r) Alex Wynstra, Jr., Div. of Parks & Forestry, Columbus, past president; Kenneth H. Funk, Funk Bros. Tree Service, Ashland, president; (standing) Dr. L. C. Chadwick, Columbus, sec-trees; William H. Collins, Cole Nursery Co., Circleville, vice-pres. Not present are Gary P. Mitten, Ohio Power Co., North Canton, pres. elect; and Dr. Philip Kozel, Ohio State Univ.

Himelick said that because many materials are being phased out, the pathologist today has fewer chemicals to recommend for disease control. He pointed out that disease control is not just a matter of applying chemicals, however. Sanitation practices, natural disease resistance and application of chemicals at the right time must all be considered to combat disease effectively.

H. M. Van Wormer, Van Wormer Tree Service, Inc., Richmond, Va. said that soil drainage around transplanted trees is important to their survival. He cited overwatering, flooding, changes in the water table, clay subsoils, little aeriation, soil compaction and ball planting depth as factors which influence tree survival.

It is essential that air reach the roots of trees, he said. Without air, root hairs will not develop. The arborist recommended six-inch drains installed five feet apart between original ground level and the fill level as a countermeasure to poor drainage. In low areas, he said to plant the tree ball higher than the natural ground level.

For large tree transplants Van Wormer recommends a six-inch circular tile system be installed four inches above the base of the ball. Upright tiles should be placed in the ground at each end of the circular system to aid in aeriation of roots.

According to Ernest G. Gebhart, division of forestry and reclamation, Ohio department of natural resources and Mark Ryan, urban forester for the city of Columbus, urban forestry is becoming more important. They reported that many communities within metropolitan areas have established shade tree commissions. Mass communications media are being utilized increasingly to provide information about the care and preservation of trees.

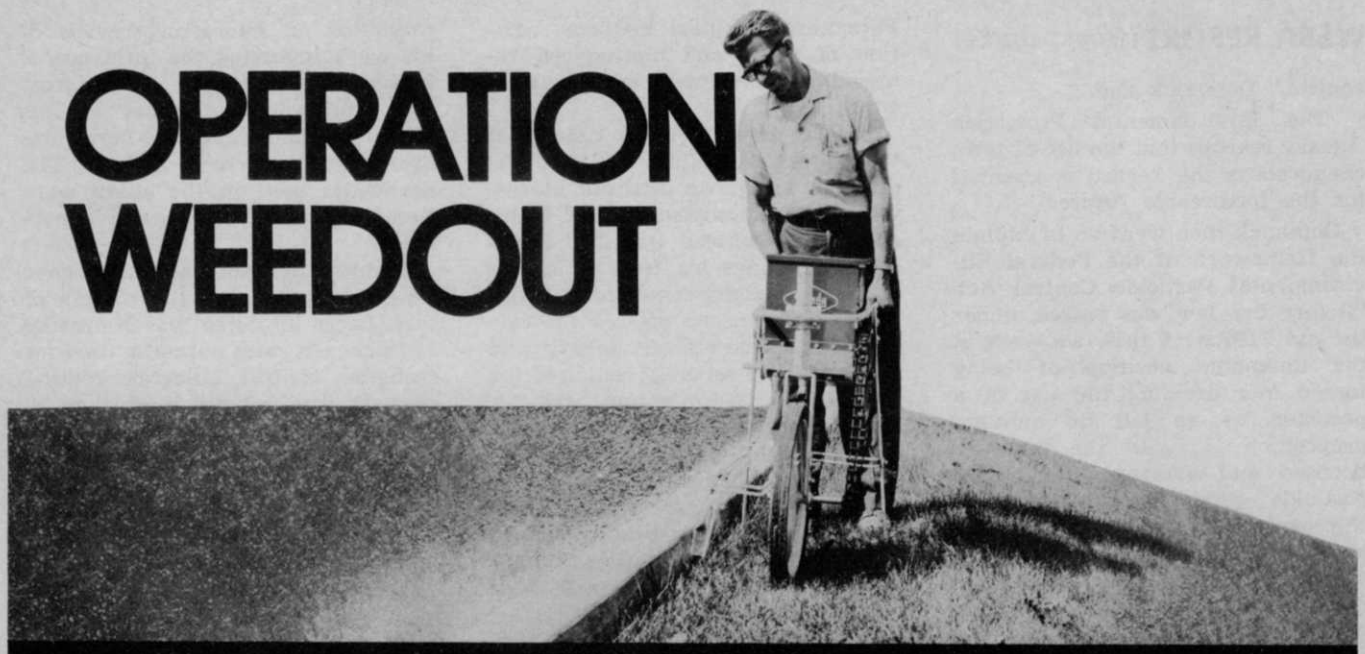
Dr. Elton M. Smith, Jr., department of horticulture, Ohio State University, told the group what was new in research in arboriculture and landscape horticulture. He discussed nutrition, slow-release fertilizers, weed control, anti-desiccants, growth regulators and winter damage.

Smith said that the university is working with the Davey Tree Company in studying iron chlorosis in oaks. They've found that injection of iron sulfate into the trunk may be one of the better treatments as far as color recovery is concerned.

Another newer "tool" is leaf analysis. By determining what level of minerals and other nutrients are in the leaf vegetation experts can better recommend additions to correct problem deficiencies.

The extension horticulturalist reported that research on burlaps and various other container materials is underway to determine their lasting ability and their possible phytotoxicity. Polyburlaps examined after 18 months in the ground showed evidence of root penetration, he said.

OPERATION WEEDOUT



APPLY CASORON NOW—
GET THE JUMP ON SPRING WEEDS

If your business is maintaining weed-free highway right-of-ways, parks and recreation areas, landscape ornamentals, golf course grounds, shelterbelts and forests, or fence rows and buildings . . .

You need CASORON® herbicide.

CASORON is a selective herbicide that knocks out over 40 tough weeds and grasses, and perennial weeds like Quackgrass, Canada Thistle, Artemisia and many others.

And it works best in the fall when you really should start your weed control program. There's more time, more equipment available, and you reduce weed control labor needs during busy spring months.

Casoron is available in an easy-to-use granule that provides a wide margin of safety to both man and plants. It won't leach laterally, and you don't have to worry about soil residues.

This fall give our CASORON OPERATION WEED OUT a try . . . come spring you'll be happy you did.

For information mail the coupon below, or write: THOMPSON-HAYWARD CHEMICAL COMPANY, P. O. Box 2383, Kansas City, Kansas 66110.

2-8980

CASORON
DICHLOBENIL WEED & GRASS KILLER

T-H

NEW CASORON INFORMATION

Colorful brochure now available FREE. Simply mail this coupon. We'll rush you your copy.

Name _____

Company _____

Address _____

City _____ State _____ Zip Code _____

For More Details Circle (136) on Reply Card

WSSA REPORT *(from page 24)*

control," Dominick said.

"The Environmental Protection Agency realizes that the use of farm chemicals in this regard is essential for the foreseeable future."

Dominick then went on to explain the framework of the Federal Environmental Pesticide Control Act. "Before this law was passed, under the old FIFRA of 1947, we were in the untenable position of being forced into deciding the use of a pesticide as an 'all or nothing' proposition . . . In the past we licensed and oversaw labeling of pesticide products for interstate shipments. But, there was no control over the actual use of products," he said. "Under FEPCA pesticides have been distinctly categorized."

The EPA official said that the timetable for implementation of the law is staggered over a four-year period. Although an EPA task force is already at work on implementing the law, Dominick invited WSSA's views in working out the details of the Act. Public participation has already been solicited.

Dominick concluded by expressing his support of pest control methods beyond those of chemical control. Parasites, biological methods, rotation of crops and mechanized removal of unwanted growth were cited.

In the area of weed control of turfgrasses, Dr. Robert W. Schery, director, The Lawn Institute, Marysville, Ohio discussed "Weed Influences on Lawnseed Quality." Based on the findings his tests which involved random commercial samplings of lawnseed offered for sale in major market areas. Schery said few had to be severely criticized for formulation. Germination was almost never deficient, and purity claims for the most part were only mildly if at all questionable.

Noxious weeds, according to the director, were not a problem. More serious were crop inclusions, fairly frequently present and sometimes rather abundant on a seed count basis. Ryegrass and field forage species were the chief culprits.

Schery concluded that bentgrass and annual bluegrass seemed not too serious a problem. Generally, lawnseed is of good quality. Seed growers have shown vast improvement in commercial responsibility over the condition prevailing only two decades ago, he said.

S. W. Bingham, Virginia Polytechnic Institute and State University, presented an interesting review of his work involving the influence of herbicides on rooting in turfgrass sod. Unlike other studies in this area, Bingham applied herbicides over the top of *freshly* laid sod. The herbicides used in the study were Betasan, Balan, Dacthal, and Tupersan.

Results? Betasan and Balan gave similar responses on the rooting of turf. Least inhibited was Kentucky 31 fescue. At rates normally used for crabgrass control, bluegrass rooting strength was reduced more than 50 percent. Dacthal and Tupersan had little effect on fescue and bluegrass. However, Tupersan completely inhibited the rooting of Tifgreen bermudagrass and Dacthal reduced rooting by 30 percent.

One month after the last treatment in the fall evaluations were again made. Dacthal and Balan did not reduce the rooting of Tifdwarf bermudagrass sod. On the other hand, fall rooting was reduced by spring treatments with Betasan and Tupersan.

In a similar study J. A. Jagschitz, University of Rhode Island, reported on the effect of 2,4-D, Banvel D, silvex and mecoprop and combinations of these herbicides on the root-

(continued on page 64)

WSSA Outstanding Teacher's Award winner F. W. Slife (l) receives plaque and $1000 check from E. R. Laning, Jr. of Dow Chemical Co., award sponsor.

D. E. Moreland, N. C. State Univ., receives Outstanding Research Award. J. J. Hood, (r) Ciba-Geigy Corp. presents plaque and trophy as award sponsor.

J. L. Hilton, USDA, (r) is the recipient of the Outstanding Research Paper. C. L. Foy, Virginia Polyetchnic Institute makes the presentation.

Outstanding Extension Award went to E. P. "Dutch" Sylvester, (l) Iowa State University. G. C. Klingman, Elanco Products Co. makes presentation of $1000 and plaque.

Announcing:

TWO new products from Scotts ProTurf... for a tough, healthy, fast-growing sod.

1

Victa, a new ProTurf bluegrass seed variety for dense, robust sod with outstanding disease resistance. Victa can yield more healthy, high-quality sod per acre than most other bluegrasses because it's sturdy, resists leaf spot, stripe smut, rust, and mildew, and germinates quickly and vigorously. Low growing, Victa produces dense, dark green, fast developing turf that adapts well to various mowing heights. It responds beautifully to fertilizers, and performs consistently well under varied environmental conditions. You will also find these same characteristics in hardy, disease-resistant Victa blends.

- **Victa Blend 635**—Combines Victa with Windsor Kentucky Bluegrass for top notch turf in sunny or lightly shaded areas.
- **Victa Blend 640**—Combines the features of Victa and Nugget Kentucky Bluegrasses for use in lightly and moderately shaded areas.
- **Victa Blend 532**—Combines Victa and Kentucky Bluegrasses with C-26 Hard Fescue to produce standout turf in lightly and moderately shaded areas.
- **Victa/Baron Blend**—Combines the characteristics of these two new Kentucky Bluegrasses with improved disease resistance.
- **Victa/Merion Blend**—Especially blended for sod production, shows excellent establishment, color and blade texture, good fertilizer response and improved disease resistance.

2

ProTurf Starter Fertilizer, specially formulated to give seedlings the "balanced diet" they need—the right proportion of nitrogen and phosphorus—to develop healthy top growth and deep root systems . . . fast. ProTurf Starter Fertilizer can be used when seeding, sodding, or sprigging new turf areas. It supplies a balanced diet of phosphorus, nitrogen and potassium, and meets the phosphorus requirements of new seedling plants in phosphorus deficient soils. ProTurf Starter Fertilizer:

- Is a controlled release fertilizer, slows down leaching so that nutrients are available when the developing seedling needs them.
- Is non-burning, surface applied at 176 pounds per acre, puts the nutrients where the young roots can reach them . . . in the top ¼ inch of soil, and saves time and cost of discing-in while using less fertilizer.
- Promotes faster turf development, earlier sod harvests; reduces weed problems, erosion, pollution through erosion, by promoting early and vigorous seedling growth.

In Scotts continuing product development program, only those products that survive rigid, long-term testing reach the market under the ProTurf label. **ProTurf Victa Kentucky Bluegrass Seed** and **ProTurf Starter Fertilizer** have been proven in years of testing. And that's your assurance that they will perform for you.

Scotts ProTurf®

ProTurf Division, O. M. Scott & Sons, Marysville, Ohio 43040

For More Details Circle (103) on Reply Card

The great dwarf Bluegrass that stands below the rest.

- DEVELOPED IN ALASKA
- LOW CUTTING HEIGHT
- SHADE TOLERANT
- DEEP GREEN COLOR
- HIGHEST ROOT STRENGTH (A HARVESTER MUST)
- HIGHLY WINTER HARDY
- RESISTANCE TO ALL MAJOR TURF DISEASES

DEMAND CERTIFIED NUGGET —DIRECT PROGENY OF ALASKAN SEED

Nugget

Kentucky Bluegrass

PICKSEED WEST, INC.
Box 217, Albany, Ore. 97321

For More Details Circle (151) on Reply Card

HERE AT LAST!
A READY-TO-USE TREE INJECTION KIT

For: Dutch elm disease treatment. Systemic injection of insecticides, fungicides, tree nutrients.

The Safe Way to Inject!

KIT CONTAINS:
Heavy Duty 4 gal. No Rust Tank.
Corrosion Proof Pump (pumps to 40 lbs. psi).
6 Injector Tips.
Air Vent Valve.
Hose and Hose Connectors.
Wood Auger Bit.
Wood Filler Compound.
Easy to Follow Instructions.

Only $79.50 Postpaid

Send check or money order today to:

P. D. I. TREE PRODUCTS
200 Sylvan Ave.
Rutledge, Pa. 19070
Pa. residents add 6% sales tax.

BRUSH CONTROL PROGRAMS

(from page 20)

we now cut and windrow brush. This method doesn't disturb the topsoil; and grass moves in much faster. And, the faster the grass comes, the faster wildlife returns to the right-of-way.

SPRAY ONLY HIGH-GROWING BRUSH

Next came a change in our chemical brush control program. Instead of broadcasting chemicals to control all brush along our transmission rights-of-way, we've adopted what we call a "selective foliage spraying program."

Our contracted crews move in with hydraulic equipment and spray only tall-growing, troublesome brush, leaving the low-growing brush for a home for birds and small game. This "selective spraying" is employed on virtually all 1500 miles of transmission lines with the exception of a few hundred, inaccessible acres in our Northern Division. Here, on rocky, swampy terrain, we have no choice but to spray by helicopter.

BRUSH SCREENS HIDE FOLIAGE BROWNOUT

While selective spraying helped to increase New Hampshire's wildlife population, it did not solve one of our major complaint producers — foliage brownout. That's why we leave a 100 foot-wide "buffer strip" or "screen" on every right-of-way road crossing.

Screening rights-of-way has all but eliminated public complaints. The same holds true for substations which are either screened or, if that's not practical, landscaped to present a more pleasing appearance. A case in point is the projected generating station at Newington, New Hampshire. Here every environmental factor is being considered, including both the architectural and landscaping treatment of the facility.

NO FUEL OIL, NO COMPLAINTS

Finding a way to control sprouting stumps without fuel oil solved two major problems — fire hazard and public complaints. A carelessly thrown match cost us equipment losses in the past and State Forest Fire Officials often called a halt to our spraying during dry spells. Moreover, we were constantly answering complaint calls because of the oil's heavy, lingering odor.

Our search for a better way to control sprouting stumps ended last season following test applications of Hyvar XL bromacil weed killer. We tried the liquid herbicide on 680 acres and results were even better than anticipated. Hyvar XL provided better control than oil-chemical mixtures. And, we didn't have a single complaint in treating these acres. What's more, the new material allowed us much greater latitude in timing our applications. (We achieved nearly 100 percent control by applying Hyvar XL) 6 months after the clearing operation was completed and yet still contained control of all species. Oil-chemical mixtures had to be sprayed within days after clearing to be effective.

By encouraging easement landowners to raise Christmas trees under transmission lines, PSNH reduces maintenance costs and improves scenic quality. About 700 acres of land are now in trees which yield about $1,000 per acre when trees are harvested.

CONTROLS BRUSH THROUGH THE SOIL

Unlike stump-absorbing treatments, Hyvar XL is soil active, controlling brush through the plant's root system. This accounts for the herbicide's control of both seedlings and sprouting stumps. It is also the reason why we were able to obtain excellent control with very little chemical. We mixed six pounds of bromacil (3 gallons of Hyvar XL) in 100 gallons of water and sprayed at the rate of 7 to 10 ounces of mix per 2-inch stem. The amount required per acre is determined by the brush density.

PUBLIC USE GAINS PUBLIC SUPPORT

Besides developing brush control programs that do the job without raising the public's concern, Public Service Co. of New Hampshire has gained additional community support by encouraging people to take advantage of its rights-of-way.

Some people in the State such as farmers and hunters need little encouragement. They already appreciate the open land for pastures, game and fun. But, for others as well, the Company has taken positive steps toward creating multi-purpose rights-of-way.

CHRISTMAS TREES ON RIGHTS-OF-WAY

One program encourages easement landowners to raise Christmas trees under transmission lines. It's a cooperative venture with participation by the landowner, the Company and the New England Forestry Foundation.

The landowner simply signs an agreement to maintain that section of land for the cultivation of trees in return for the Company's agreement to help raise the trees. New England Forestry Foundation agents manage the entire operation. They provide tips on spraying, cultivating, harvesting and marketing trees.

By encouraging and establishing a Christmas tree management program, the Company practically eliminates right-of-way maintenance and adds to their scenic quality. But, the big plus is in neighbor relations. Landowners are realizing a profit they never had. Of the 700 acres of easement land now in trees, most will yield about $1,000 per acre (about $1 per tree) when trees attain Christmas size of six to eight feet in anywhere from five to ten years.

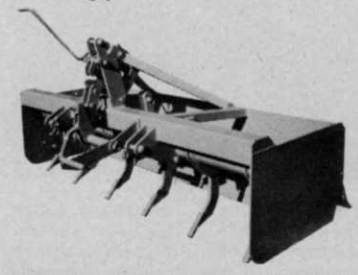
Establishment of public recreation areas is yet another attempt to minimize the impact of electric power lines on the landscape. So far Public Service Co. of New Hampshire has three such areas, including a boat launching facility where lines traverse a great spot for fishing. Picnicking, hiking and horse back riding draw most people to the other two right-of-way "public parks."

But, public access is not without problems, one of which is increase in trash. That's why all of Public Services' present recreational areas are located near stations where manpower is available to supervise and patrol the facilities. Regardless of potential problems in such sites, public appeal and support far outweighs the problem of public indignation. □

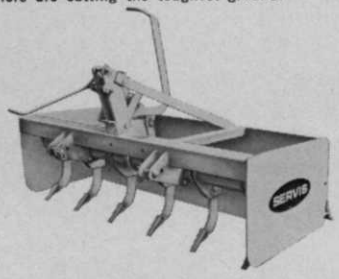
These box scrapers mean business!

All ten models are built to move heavy loads quickly with minimum power and effort. Curved blades cut and roll soil into maximum loads. Lifting mechanism and scarifier assemblies are designed with higher front end clearance for larger intakes. The exclusive structural design of all Servis deluxe box scrapers provides direct support from the draw link connection to the rear moldboard to prevent warping or bending. See your dealer for the Servis box scraper that best fits your requirements . . . and make fast, easy work of all future soil moving jobs!

HYDRAULIC models (66", 72", and 84") feature a positive mechanical lock to eliminate any stress on the cylinder, even when scarifiers are cutting the toughest ground.



AUTOMATIC LIFT-TRIP models (66" and 72") feature scarifiers that automatically lift and lock when the box is raised. Trip lever drops teeth back into cutting position.



HAND-LIFT models (66", 72", and 84") have manually-operated hand-lift control which easily raises, locks, and disengages scarifier teeth. Highly responsive.

SECO, JR. models (66" and 72") are popular with operators who do not usually require scarifier teeth for their routine work. Optional teeth can be positioned manually in UP or DOWN position.

WT4

SERVIS **SERVIS EQUIPMENT COMPANY**
1000 Singleton Box 1590 Dallas, Texas 75221

Please send product literature on: ☐ HYDRAULIC SCRAPER ☐ LIFT-TRIP SCRAPER ☐ HAND-LIFT SCRAPER ☐ SECO, JR. SCRAPER

☐ Also, please send me the name of my nearest authorized SERVIS dealer.

Name _____ ☐ Student?

Address _____ Telephone _____

City _____ State _____ Zip _____

For More Details Circle (119) on Reply Card

Green Industry Newsmakers

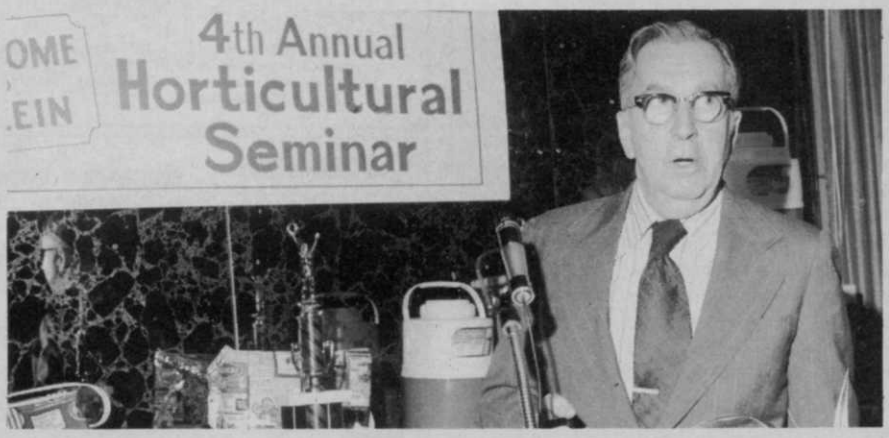
PEOPLE PLACES EVENTS

Newly named Fellows of the Weed Science Society of America are: (l-r) Dr. E. K. Alban, Ohio State University; Dr. W. R. Furtick, Oregon State University on leave to the United Nations; Dr. R. Behrens, University of Minnesota and, Dr. Glenn C. Klingman, Elanco Products Co., Indianapolis.

Joseph Welker, Duval Landscape Company, Jacksonville, Fla. has been named by Doyle Connor, Florida Commissioner of Agriculture to the Florida Agricultural Advisory Council and the Plant Industry Technical Council. He is immediate past president of the Florida Nurserymen and Growers Association.

Robert Ench, (l) president, Flower Time, Inc. presents a plaque inscribed "Best New Product of 1972" to Bob Gioscia of J. & L. Adikes, Jamaica, N.Y. According to Ench, Adelphi Kentucky bluegrass literally "walked off the shelf" last year. Demand was strong for this new variety.

James Munn (l), general manager of Otis Town & Turf, Otis Elevator Company, congratulates Charles Lapaca (c) of Kenyon Sales Co., Ft. Lauderdale, Fla. upon receiving the Dealer of the Year award. Denver Brown, sales manager of Otis Town & Turf, look on from right.

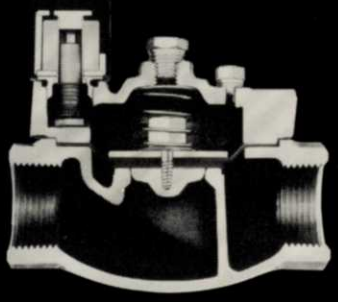


Bud Harrison, home horticultural specialist at Rutgers University spoke to sales personnel during the 4th annual Horticultural Seminar conducted by S. Klein for its environmental center staff personnel.

Weather-matic turf irrigation components are higher quality and cost a little more.

Therefore, a Weather-matic System costs more than another system. Right?

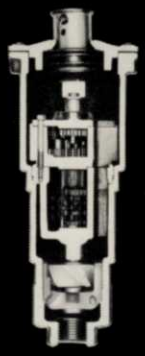
Not necessarily.



You see, in a commercial or industrial application, with Weather-matic's superior design capabilities, fewer components may be required for optimum performance. That means you get higher quality, a better functioning system — and a lower total cost.

So, you don't always get what you pay for. Sometimes you get more.

For additional information on Weather-matic irrigation systems, write or call:

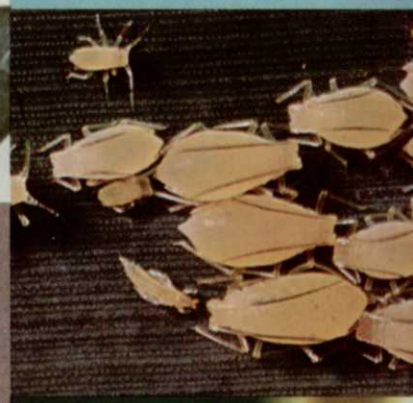


Weather matic®

LAWN AND TURF SPRINKLER SYSTEMS

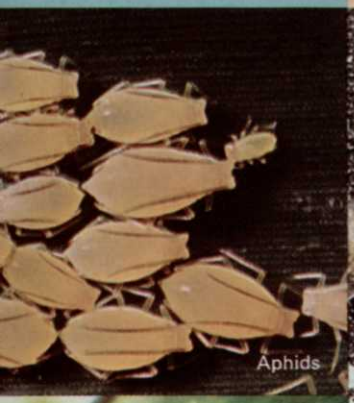
P. O. Box 18205 / Dallas, Texas 75218 / (214) 278-6131

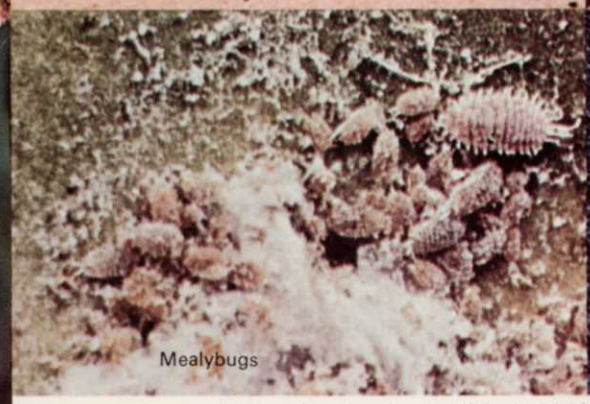
For More Details Circle (117) on Reply Card



1973 will be a bad year for bugs.

Bad for bugs of turf and ornamental plants. And bad for household and structural bugs. Because Dow has a pair of insecticides that will make their lives miserable. There's ZECTRAN* insecticide, a general use biodegradable insect killer that works on almost all major foliage-feeding insect pests—even the hard-to-kill kinds. Use ZECTRAN on over 600 different flowers, ground covers, trees, shrubs and turf. And then there's DURSBAN* insecticide. Its effectiveness, economy, non-phytotoxicity and biodegradability make it the choice of professional turf men for golf greens, turf farms, home and





Ag-Organics Department, Midland, Michigan 48640

industrial lawns—or wherever grass and ornamentals are grown. It's especially effective to control the hairy chinch bug and sod webworm. DURSBAN insecticide is also preferred by PCO's for controlling household and structural pests—especially resistant roaches that laugh at other sprays. Please remember to read and observe all precautions on the product label. Bugs, get ready for 1973!

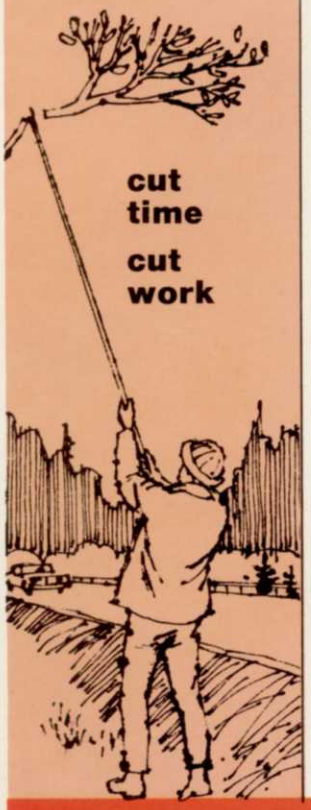
*Trademark of The Dow Chemical Company

DOW*

DOW CHEMICAL U.S.A.

For More Details Circle (129) on Reply Card

Ackley hydraulic powered tools



Ackley tools put you in complete control of big gardening/landscaping jobs. Deliver plenty of power for cutting, clipping, pruning, sawing.

New Ackley Swivel Pruner (illustrated) is designed for fine pruning on new wood or young trees. Gives you the cutting angle you need instantly. Lightweight hook. 360° swivel handle for hard-to-reach areas. 3 to 5 foot lengths.

Need more help? Check with Ackley for pistol-grip chain saws, pole chain saws, pole circle saws and additional pruners. Farm or garden tractor provides the hydraulic power source.

For more information/literature, call Harold DePue, Sales Manager, (503) 659-5660. Or write:

ACKLEY MANUFACTURING CO.
13770 S.E. Ambler Road
Clackamas, Oregon 97015 Dept. 343

ACKLEY

For More Details Circle (113) on Reply Card

This light-weight unlined glove is available with enough gauntlet to protect the wrist area but flexible enough to allow freedom of finger movement. Cost is less than heavier grade gloves which are less comfortable to wear.

PROTECTION FROM EXPOSURE *(from page 12)*

dermititis.

Most herbicides are also generally less toxic than other types of pesticides. A dinitro compound (dinitrocresol) used for weed control for many years has caused illnesses of workers in Europe. In contrast, our exposure studies have indicated that under the conditions of use in the Pacific Northwest area of this country there is no significant hazard associated with the application of dinitro compounds for weed control. This conclusion has been corroborated by use experience.

One herbicide, paraquat, is of considerable interest because only a very small oral dose may produce irreversible lung fibrosis which usually leads to death. There is little if any response to antidotal procedures. Although many of the recorded deaths from paraquat have been due to voluntary ingestion with suicidal intent, there have been deaths following accidental ingestion of very small amounts of the liquid concentrate. In one case it was estimated that the quantity of fluid consumed could not have exceeded three quarters of a teaspoon. This compound is also somewhat caustic and may cause chemical damage to the eyes.

This emphasizes the importance of avoiding splashing the concentrate into the mouth or eyes during measuring and mixing operations.

Although illnesses resulting from overexposure to pesticide compounds do occur among applicators and other workers, most are a result of carelessness or accident. Experience has shown that if proper precautionary measures are observed and directions on the pesticide label are followed, even the more toxic compounds can be used safely.

The best insurance against illness from pesticides is to protect the various routes of entry into the body. There are three main routes: dermal, respiratory, and oral.

Dermal Route

Absorption through the skin is the most important route of entry of pesicide into the body during most exposure situations, especially where liquid sprays and emulsifiable concentrate formulations are involved. This route is one that has undoubtedly been responsible for a great many poisonings of workers, especially from the more toxic organophosphorus compounds.

We have conducted exposure studies on several hundred pesticide applicators. *Our results indicate that over 97% of the pesticide to which the body is subjected during most exposure situations, and especially to applicators of liquid sprays, is deposited on the skin.*

It should be understood that any given amount of pesticide is more rapidly and more completely absorbed by the oral or respiratory routes. However, absorption of pesticides by these two routes is probably

too small a fraction of the total potential exposure to be considered the main factor in most poisoning cases of workers in the field.

Although the rate of absorption of different pesticide compounds through human skin is difficult to measure with any degree of accuracy, researchers have made some progress along that line. Using radioactive labeled pesticides, Maibach and co-workers at the University of California School of Medicine were able to determine approximately what fraction of an applied dose would be absorbed. They were not only able to compare degree of dermal absorption for certain pesticides but also they compared absorption of a single pesticide for different parts of the human body. The results obtained indicate that in the past sufficient importance may not have been attached to protection of certain body areas.

In checking dermal penetration of parathion at different body areas these researchers found that the area of greatest absorption on man is the scrotum where aproximately 100% of an applied dose was absorbed. The possibility of pesticide on this body area being completely absorbed emphasizes the need for increased concern about providing protection for the area. This is of utmost importance where spillage of highly toxic pesticides, and especially the liquid concentrate formulations, is concerned.

The head-neck area was found to be an area of greater absorption than the arms or hands.

Of particular interest was the finding that absorption in the ear canal is relatively efficient (46.6% of an applied dose of parathion). Exposure in this area could occur through drift of fine pesticide mists or dusts or by digging in the ear with the tip of a contaminated finger.

When pesticide application is by hand spray gun on target areas below waist level the area of greatest potential contamination from drift may be the lower trunk, legs, and feet. Cloth coveralls or trousers provide a reasonable amount of protection for most of these areas in work situations where contamination does not easily penetrate clothing. However, where there is chance of soaking by continued contact with liquid sprays or penetration of clothing through excessive contact with dry pesticides, waterproof trousers and boots provide the best protection. *In fact, we feel that waterproof footgear should be worn during most any type of pesticide application. They should be washed and dried thoroughly, inside and out, as frequently as needed to remove any contamination.*

If application involves directing spray upward, the downward drift can often produce relatively high dermal and respiratory exposure. The best protection of the face-neck area from downward drift is afforded by the wearing of a waterproof wide-brimmed hat. This also reduces respiratory exposure to some extent by preventing small droplets or particles from getting near the nose where they may be drawn into the nasal orifice.

Protection of the upper trunk and arms is especially important where heavy spray drift may thoroughly wet cloth shirts, coveralls, and underclothing. A waterproof jacket or raincoat provides the best protection for this general body area.

Waterproof gear is usually worn during cooler conditions, but as the temperature rises and the clothing becomes unbearably hot to wear, workers tend to discard them and work with much less protection — perhaps only a short-sleeved, T-

(continued on page 52)

First best, we'll admit, is a good soaking rain. But an underground system using Certain-teed PVC pipe comes in second to nothing else.

Economy. The overall installation cost is less. Lightweight PVC requires no special handling machinery. Joints are quickly and easily made. You get a choice of FLUID-TITE™ double-gasket joints, or deep-socket, solvent-weld joints. Fast installation saves money.

No maintenance worries. In the ground, PVC pipe is inert. It won't corrode, rot, or rust. Joints don't leak. And non-metallic PVC never needs protection against electrolytic action.

More water for less pressure. Smoothbore PVC is free of bumps and other obstructions that could hinder water flow.

Pays for itself quickly. Because you spend less to install it, and practically nothing to maintain it. And you save because one man can easily handle a PVC system.

Get it all from your Certain-teed distributor. Including PVC fittings and all the expert supervision you need. If keeping the turf watered and green is your responsibility, specify Certain-teed PVC. You'll never have a big tournament called for lack of rain. For complete information, write: Certain-teed Pipe & Plastics Group, Valley Forge, Pa. 19481.

CERTAINTEED Pipe & Plastics Group

For More Details Circle (126) on Reply Card

Takes Years To Grow 'em, Minutes To Move 'em With Vermeer Tree Spades

Truck-mounted TS-66T Tree Spade—A high production unit with the extra advantage of single unit mobility. Digs tree ball 66" in diameter, 48" deep. Requires absolutely no hand labor. Hydraulic controls position its high tensile steel spades.

Take The Diggin' Dutchman's big Model TS-66T, for example. Automatically digs, balls, transports and transplants large 6" diameter trees in minutes. Saves you thousands of dollars annually because it runs on a tankful of gas, not a handful of paychecks. One man and one machine can handle the entire job . . . without the expense and labor found in conventional tree moving operations. Used by land developers, landscapers, municipalities, real estate and tree service firms everywhere. Put it to work on your tree moving-planting projects. Write The Diggin' Dutchman today or, better yet, call him (515/628-3141) NOW for a FREE demonstration of any of six Vermeer Tree Spades. Vermeer Mfg. Co., 7204 New Sharon Road, Pella, Iowa 50219.

THE DIGGIN' DUTCHMAN

VERMEER TREE EQUIPMENT DIVISION

For More Details Circle (120) on Reply Card

ARBORIST SHOP TALK

By Hank Harvey Jr.
Rutledge, Pennsylvania

Tree Feeding

Every year thousands of trees die of malnutrition! Yet tree fertilization continues to be one of the most neglected facets of the arboriculture industry, even though it is certainly one of the most important considerations of tree care in general. And, to the commercial tree service contractor, tree feeding has got to be one of the most lucrative operations of his business. The labor required to do the jobs does not have to be skilled, and the margin of profit is great.

When you get right down to it, there is nothing you can do for your customers' trees that is more beneficial overall than feeding them. Any living thing is better able to resist disease and withstand injury when it is in vigorous condition. A tree's natural resistance can often ward off mild disease infections and enable it to recover from insects, storm damage, and/or drought if it is in a healthy condition. Most of your customers don't realize this, so it is up to you, the professional, so inform him. It is for his own benefit as well as yours.

There are several different methods of tree feeding employed by professional arborists. Probably the most well known and most popular method is the dry-fertilizer-in-the-ground technique. This method requires only a bag of tree fertilizer (usually a 10-6-4 mixture), a funnel and a punch bar or earth auger to make the 12" to 24" deep holes or "cores" in the ground. They are made in concentric rings around the tree trunk (no closer to the tree than three to four ft.) and usually not further out than the drip line of the branches. The holes are filled to about 2" from the top to prevent "burning" the grass roots.

Another popular way to feed trees is the liquid-forced-into-the-ground under pressure method. This can be done by means of just a garden hose and a Ross-Root Feeder type of feeding needle that can be purchased with its own nutrient cartridges. However, many professionals prefer to use a more sophisticated, higher pressure system which uses a pressure spraying unit. They mix their own soluble fertilizer and inject it into the soil at about 250 psi pressure. The higher pressure is faster than low pressure and forces the liquid into a wider saturation area initially. It also gives the commercial operator an additional use for his power sprayer.

There are other methods of tree fertilization now being used. One is systemic injection (Mauget) via injector cups and feeder tubes in the tree, and the up and coming pressurized injection method. The cup type injection system employs small cups forced into an injector stem which is driven into the tree. The cups are then pushed onto the stem and the chemical concentrate allowed to stay there for several hours or more until liquid has been "taken up" by the tree.

The "plug" type cartridges (Medicaps) are put into small holes drilled into the trunk of the tree. They are used primarily for treating specific nutritional deficiencies rather than for general tree fertilization. They are being used extensively right now for treatment of iron deficiency chlorosis.

The pressure injection technique is a method also used primarily to treat specific ailments at the present, but it may become more popular in the future if environmentalists resist the foliar tree spraying enough to force commercial arborists to go another route. The main advantages of the pressure injection system are its ability to force large dosages of nutrients (or whatever is being injected) into the tree rapidly, and the fact that there is no chemical residue left behind.

Foliar fertilization enables the trees' leaves to utilize the nutrients supplied almost immediately. It is ideal for a tree that needs fast invigoration. Of course, the effects are not nearly as long lasting as those obtained by root feeding or even trunk injections.

NEW TWISTS IN DRAINAGE

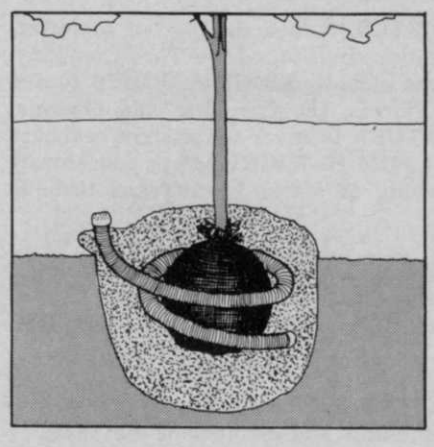
(from page 19)

which literally turn into ponds after a heavy rainfall. Corrugated two-inch tubing can be installed in shallow drainage beds to carry water off into a dry well of gravel underground or into existing drainage.

New playgrounds, senior citizen recreational areas, apartment landscaping and a whole range of outdoor athletic facilities all demand attention to proper drainage in order to keep maintenance costs at a minimum.

Flexible two-inch tubing also lends itself well to various irrigation drainage projects. It is now possible to spiral tubing around balled and burlapped tree roots under ground in order to provide the plant with a "built-in" water reservoir during times of heavy rainfall. A constant supply of oxygen (especially important for the propagation of new root growth) is made available to the balled area through the spiralled tubing which opens at or above ground surface level. Nutrients may also be introduced through the tubing's top opening to disperse slowly around the root ball.

The 1970's have brought a completely new picture to drainage and its application. The materials are now modern, easy to handle, lightweight and inexpensive. With today's trenching equipment and lightweight corrugated tubing we can now work on projects where the problems of handling heavyweight materials once made even getting



near the job sites impossible.

A properly installed drainage system will work efficiently, inexpensively and dependably for many years. As the one element in a landscaping operation that does not require constant watering, feeding, repairing or replacing, it should reflect your careful planning and consideration. Remember, "Drainage doesn't cost, it pays." □

Emergency transplant operations . . .

always a success with Ryan sod cutters.

Winter kill, fungus and disease can hit the best-kept fine turf areas. Excellent insurance to keep these areas in lush, living grass is a sod nursery for emergency repair. And the best way to perform the transplant operation is with a Ryan Sod Cutter. Ryan has a size and model to suit every need.

Ryan JR Sod Cutters (1)

. . . turf-world's most popular sod cutters are compact and highly maneuverable. Self-propelled, easy-to-operate JR Sod Cutters are available in three models capable of cutting 9, 15, or 20 sq. yards of sod per minute. They're ideal for average-size sod nurseries.

Attachment blades are available for all models for trenching, edging, tilling, pipe laying and subsoil aerification.

Heavy Duty Sod Cutters (2)

. . . for large sod nurseries and big transplanting jobs. These *extra* rugged machines are built to commercial specifications. Five models are available, enabling you to cut up to three acres of sod per day. All models come in a choice of cutting widths from 12″ to 24″. They operate smoothly and quickly with dependable, 2-speed transmissions.

Write for FREE Ryan Equipment Catalog.

Ryan®

TURF EQUIPMENT
Outboard Marine Corporation
1757 Cushman Drive
Lincoln, Nebraska 68501

For More Details Circle (107) on Reply Card

QUALITY,
Performance, Dependability...

COLT.
One word.
You know it.
Quality, performance, dependability are all there.

JACKLIN.
One word.
Same story.
Jacklin Seed Company is one of the world's largest producers of bluegrass and other grasses, a name synonymous with quality, performance and dependability. When ordering seeds, specify JACKLIN SEED.

JACKLIN PRODUCES:
Merion Kentucky bluegrass
0217® Brand Fylking Kentucky bluegrass
Nugget Kentucky bluegrass
S-21 Kentucky bluegrass
Newport Kentucky bluegrass
Delta Kentucky bluegrass
Geary Kentucky bluegrass
Park Kentucky bluegrass
Six Kentucky bluegrass
Troy Kentucky bluegrass
Norlea Perennial ryegrass
Public and private varieties of Creeping Red, Chewings & Hard fescues.
And has produced on a contract basis:
Pennfine Perennial ryegrass
N.K. 100 Perennial ryegrass
N.K. 200 Perennial ryegrass
Pelo Perennial ryegrass
For these quality Jacklin seeds see your local wholesale seed distributor. Jacklin is also a prime* contract producer of:
Warren's A-34 Kentucky bluegrass
O.M. Scott's Windsor Kentucky bluegrass
Adelphi Kentucky bluegrass

Jacklin has built a reputation for fine quality and service over 30 years. You can count on purity of content, high quality and sure germination.

*Available only through breeder and owner outlets.

Jacklin® Seed Company
Division of the Vaughan-Jacklin Corporation

industry people on the move

GRANT JURGENSEN joins Jacklin Seed Company Division of The Vaughan-Jacklin Corp. He will be working in foreign and domestic wholesale seed sales.

* * *

BERNARD A. NAPIER appointed president of Hypro Division, Lear Siegler, Inc. He succeeds **HARRY J. SADLER** who retired after serving as president of Hypro throughout its 25 year history.

* * *

DR. KENNETH R. TEFERTILLER named vice president for agricultural affairs of the University of Florida by the board of regents.

* * *

ROBERT A. MARTIN appointed vice president of sales for the Bunton Company. He was sales manager for both the Bunton and Goodall product lines.

* * *

GERALD A. WELCH, named director of agricultural marketing, and Sherwood M. Boudeman, named director of agricultural administrative services for the Upjohn Company.

* * *

RONALD BEAN, joined the agricultural division, Ciba-Geigy Corp. as a field sales representative.

* * *

TOM DAGNON, appointed technical representative serving southeastern Pennsylvania, Delaware and the eastern shore of Maryland for O. M. Scott & Sons.

* * *

BRUCE STIKKERS, joined Thompson-Hayward Chemical Company as an agricultural sales representative.

* * *

FRIEDRICH J. "FRED" KATZ and **JEFF HOLCOMB,** named chief engineer and controller, respectively, for Yard-Man, Inc.

* * *

GLENDALE GRIZZLE, named director of manufacturing for the irrigation division of the Toro Company. Other division moves include: **ERNIE R. JONES** to district manager for Florida, the Carolinas and Georgia; **THEODORE D. MATULA** to cover the eastern seaboard north from Virginia; **JIM H. WICKHAM** to concentrate on the southern swing of states from Texas through Alabama.

* * *

JOHN D. "JACK" HYLAND becomes an automatic controls sales representative for the Hays Mfg. Div. of Zurn Industries, Inc. He will cover a six state, east central region as well as the District of Columbia.

* * *

WILLIAM S. HATTEN, elected group vice president—engines and electric plants and member of the board of directors, for Kohler Co.

* * *

JEREMIAH J. SULLIVAN, appointed advertising and sales promotion manager for Ford Motor Company's Tractor and Implement Operations—North America. He succeeds **J. F. FITZSIMMONS** who was named marketing manager of Ford Tractor Operations' industrial equipment operation.

* * *

HARRY W. LARSON becomes sales engineer for the turf division of Jacobsen Manufacturing Co.

NAA REPORT *(from page 22)*

trucks white. He said that the NAA logo is prominently placed on the trucks.

"We get a tremendous number of calls from people who recognize the NAA logo," Money testified.

The education session for the second day began with a presentation on tree injection systems. Featured on the program was Warren Wolfe, Creative Sales, Fremont, Nebr. and Del Kennedy, Mauget Tree Injectors, Burbank, Calif.

"We are now into an era where we can use simple tools to inject trees," said Wolfe, holding up a power drill and hammer. Demonstrating the Medicap injector, he said it is a small tapered plastic design cartridge. It is retained into the tree with anti-rejection barbs. Wolfe said that Medicaps are currently sold in three sizes, minicap for trees up to three inches in diameter, standard Medicap for trees three to eleven inches in diameter and super Medicap for twelve inches or more in diameter.

"Primarily we are dealing with a product that will control iron chlorosis," he said. "We have worked experimentally with insecticides and fungicides. The results have been impressive." Tests conducted by Cornell University show promise in the control of gypsy moth with Medicaps. Likewise, the Illinois Natural History Survey and the Shade Tree and Ornamental Plants Laboratory have conducted tests in the control of Dutch Elm Disease with Medicaps.

Wolfe said that the method of application is to plant the Medicap below the cambium layer of tissue. The tree will rapidly grow callus tissue over the hole.

Del Kennedy said that about 400 arborists are using the Mauget Tree Injectors at this time. (Roughly 50 percent of those attending the NAA meeting had used Mauget injection products.) Kennedy cited new construction, root obstruction, parking lots and other areas where treatment of trees with injection systems hold promise.

How much labor is required? Kennedy told the group that you can feed five to seven trees in about as much time as it takes to deep root feed a tree.

The Mauget system does not remove any tissue from the tree, Kennedy claims. The inserting tool spreads the tissue apart. The feeder tube is then held in the tree by the separated woody tissue.

Kennedy said that there is no need to convert to this type system. "Just add it to your present line," he said. "It just gives you another tool to use in your tree work."

The next speaker on the program was Melvin Dunton, chief deputy director of the department of insurance, State of Arizona. In summary, Dunton said that the insurance you buy is no better than the person you buy it from. There must be reputable professionals in the insurance business who know your business. Don't buy from the first company you see. Don't buy from a company just because it has the lowest premium rate. Shop around.

Dunton pointed out that the basic concept of insurance is compensation of the many for the disasters of the few. He said that one reason a firm is dropped by an insurance company, even though the accident record has been good, is that the general classification of accidents under which the firm is rated has

(continued on page 45)

Write for Model 4E Catalog Data

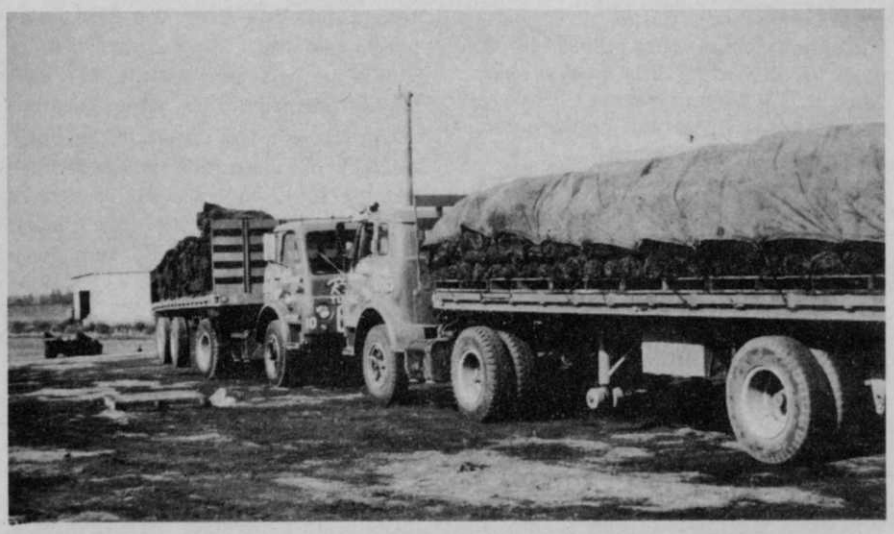
MOBILE AERIAL TOWERS, INC. • Dept. N • 2314 BOWSER AVENUE • FORT WAYNE, INDIANA 46803

Shown mounted on utility body, the 4E is available with your choice of truck and body.

Mounting on track vehicles equip HI-RANGER for any environment.

Over traffic or near power lines, HI-RANGER versatility demonstrates unique capability.

For More Details Circle (108) on Reply Card



Sod is covered by tarp before delivery to prevent drying out. Red Hen is owned and managed by Harold Hetler, Ron Keigley and Victor Keigley.

Compromising At The Sod Farm

By VICTOR R. KEIGLEY
Red Hen Turf Farm, Inc.
New Carlisle, Indiana

IF THERE is one thing that is constant, it is change. In the past 16 years with regard to bluegrass varieties, we have experienced many changes and many more are planned for the years ahead. Here's a few examples to illustrate my point:

We have changed from rolling sod by hand to the sod harvester which rolls it, conveys it to men who place it on pallets ready for the fork lift to load on wagons or trucks. We have decreased labor cost to the customer by eliminating unloading of sod by hand through the pallet and fork lift system which places the sod exactly where he wants it.

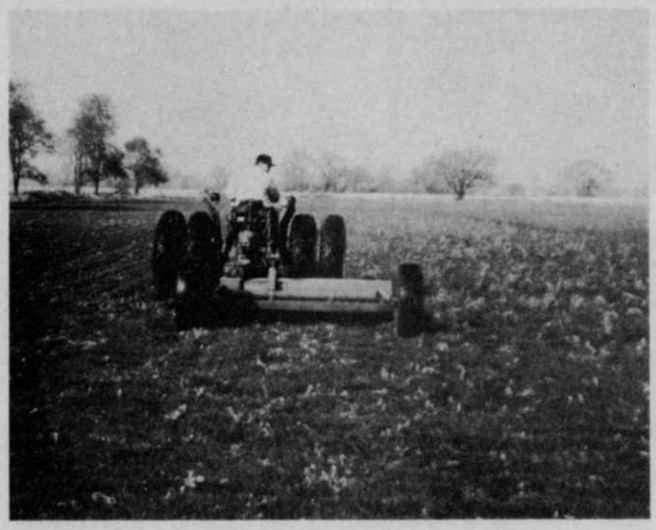
We have also had some changes in the varieties and the blends of bluegrasses grown since our beginning in 1956. When we first started, we grew one field of Merion and one field of Kentucky bluegrass. When I think back to those days there was really no reason for growing two different fields of sod except that everybody else had two or more varieties, and you could sell the Kentucky for less money and have an excuse.

But one problem situation was apparent in Kentucky bluegrass production. Leafspot or "melting out" disease occurred during early spring's cold wet weather. This caused a delay in harvest and actually increased the cost of growing sod that was selling at a lesser price than Merion.

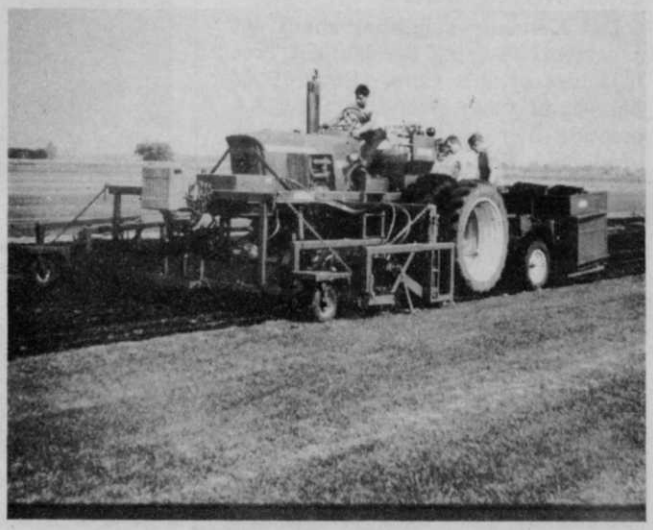
In the early 60's along came Delta Ky. and Newport Ky. bluegrasses. They were to be the answer to the leaf spot problem. The first year everything was great, but the second year the same old problems were back again.

At this time we were growing half our acreage in Merion and half in Delta Newport blend. Along in 1963 and 1964 we were going to eliminate our problems by growing a blend consisting of Merion, Delta & Newport. Having half our acreage in Merion and half in the blend worked out fine for a couple of years; until we had a very wet cold spring which melted out everything except the Merion. This caused delay of harvest until late fall and was very costly.

We then began to realize the blend which was selling at a lesser price was costing more to grow than the Merion Ky. variety. We tried



A brush chopper is used after seedlings have emerged to get large weeds which have escaped herbicide application.



Sod harvester follows closely behind the sod cutter. Conveyor carries rolled sod to four men on rear of machine.

Windsor when it came out and that also was disastrous under our conditions when leaf spot took over in May.

During this time of growing two different fields of sod, another cost factor was showing up very clearly. The best way to explain this cost factor is to give this illustration: Let's say that you're sod cutting and loading capacity per day is 10,000 yards providing the men cut and load from the same field during the whole day. If you worked 10 hours per day you have an average of 1000 yards output per hour. During this day you have five different customers come in and want a different variety than the one you are now cutting which is in another field. By the time you have moved your men to the other field and moved back again, you have wasted one half hour.

If you move from field to field five different times during the day, you have wasted two and one half hours or you have cut down your cutting and loading capacity by twenty five hundred yards. This is very costly.

From 1965 to 1970 we realized more than ever the extra cost involved in delay of harvest due to leaf spot and the very high cost of growing more than one variety. We looked to the newer varieties that Purdue University people reported on at the Midwest Turf Conferences.

We grew an acre of Fylking for a couple of years when it first came out. We were happy with the results of Fylking so in the fall of 1970 we decided to grow one sod product consisting of a bluegrass blend. This would conserve on acreage as well as increase our efficiency and service to our customer.

During this time, we were growing Sodco in an acre plot and were very impressed by this new variety.

Now we are growing a bluegrass blend consisting of Merion, Fylking & Sodco. By growing only one *elite* sod product, we feel we are giving the customer more for his money and at a price that he can afford. This is made possible through the savings in the efficiency of the farm operation.

Since we are sod growers and sod growing is our only business, we take the attitude that we know more about grasses than the average man on the street. If he happens to call in for a particular variety of grass, we make no bones about selling him on our new elite bluegrass blend. We take the attitude that we are giving the customer the most for the least cost, and we believe it. □

Market New Products
O. M. Scott & Sons

Two new products, ProTurf Victa Kentucky Bluegrass Seed and ProTurf Starter Fertilizer, are being introduced to sod growers and professional turf managers by the ProTurf Division of O. M. Scott & Sons Company, Marysville, Ohio.

Victa, a new variety of Kentucky Bluegrass, was tested for more than 10 years before being marketed. According to ProTurf spokesmen, the testing program shows that Victa seed produces fast developing turf, a dense low growing sod with outstanding disease resistance—particularly to leaf spot, stripe smut, rust, dollar spot and mildew.

The new variety germinates quickly and vigorously, establishing healthy roots and tops. Victa is low-growing and adapts well to various mowing heights, tests show. It shows excellent response to fertilizers, and over the ten-year test period it performed well under varied environmental conditions.

Also being marketed are several Victa blends, combining the characteristics of Victa with those of other Kentucky Bluegrasses. Victa Blend 635 (Victa/Windsor) was developed for sunny or lightly shaded turfgrass areas, while Victa Blend 640 (Victa/Nugget) is for sunny and light to moderately shaded areas, utilizing the features of Nugget, a proven shade performer.

Victa Blend 532 (Victa/Nugget C-26 Hard Fescue) adds features of Nugget and C-26 Hard Fescue to those of Victa to produce turf for lightly to moderately shaded areas. Victa/Baron combines these two new Kentucky Bluegrasses for improved disease resistance, and Victa/Merion, especially blended for sod production in the Northern regions of the bluegrass belt, combines two varieties which demonstrate good fertilizer response, excellent establishment, dark green color, pleasing blade texture, and disease resistance.

The new ProTurf Starter Fertilizer has been specially formulated to provide nutrients in proportions to satisfy the specific needs of seedling turf.

ProTurf Starter Fertilizer is formulated in an 18-24-6 analysis and is designed to supply a balanced diet of nitrogen, phosphorus and potassium in seeding, sodding or sprigging new turf areas. Documented tests show that it is the proportion of phosphorus and a controlled release source of nitrogen in this analysis which produces vigorous and dense seedling growth.

For fastest-starting turf

PARK Variety Kentucky Bluegrass

The 1972 crop grown by Northern Minnesota Bluegrass Growers Association is the best yet. Production is up, quality excellent.

We advise you to order your Park seed early, *as supplies of this popular variety are usually sold out before the end of the season.* All seed is Minnesota-certified.

Available exclusively from

TWIN CITY SEED CO.

500 30th Ave. N.E., Minneapolis, Minn. 55418
Phone (612) 789-8821

For More Details Circle (118) on Reply Card

INTERNATIONAL LEADER IN INDUSTRIAL MOWERS AND TRIMMERS

THE HEAVY DUTY LINE
LAWN-TURF EQUIPMENT

BUNTON

With power steering and turning, trim with either side, 21", 24", 28", 32", 36", 52" cuts mows grades with ease, engines up to 10 h.p.

BUNTON "C-21"
Heavy steel frame, adjustable handles, 3.5 or 5 h.p. engine, air cleaner mounted on handle away from dirt and grass. Push Mowers, in 18", 20", 21" and 22" cuts.

BUNTON DUZMORE
Trims, edges and mows in one easy operation. 18" cut.

For additional information write Dept. (WT-473)

BUNTON CO.
4303 Poplar Level Road
Louisville, Kentucky 40213
Area Code 502-459-3810

For More Details Circle (152) on Reply Card

Walter P. Morrow (in bed) was elected president of ASCA for 1973. He was taken sick during the meeting. Others (l-r) are: L. C. Chadwick, O. J. Andersen and W. Roland Shannon.

Consulting Arborists Elect Walter Morrow President

The American Society of Consulting Arborists held its seventh annual meeting at the Mountain Shadows Resort in Scottsdale, Ariz. in mid-February. Discussions on arboricultural consultants' problems and election of officers were highlights of the three day meeting.

Leading the society for 1973 will be: Walter P. Morrow, Sewickley, Pa., president; W. Roland Shannon, Milford, Pa., president-elect; O. J. Andersen, Houston, Tex., vice president; and F. Earle Martin, Toronto, Canada, secretary-treasurer.

Serving on the board of directors will be: Leslie S. Mayne, Burlingame, Calif., Frederick R. Micha, Monroe Tree Surgeons, Inc., Rochester, N.Y.; Charles H. Michler, Lexington, Ky.; William P. Lanphear, Forest City Tree Protection Co., Cleveland, Ohio; and the immediate past president, Dr. L. C. Chadwick.

During the education program, Donovan Speaker, attorney in Phoenix, addressed the meeting with suggestions on ways to become a better expert witness in the courtroom. Speaker stressed that "one of the first things to be determined about an expert witness who has been called to the stand would be his qualifications in respect to his education and experience."

He also urged members to "keep up to date regarding all phases of arboriculture because a judge and jury take a dim view of a witness who stopped studying and learning some 20 years ago." He suggested the value of the answer of "I don't know," if such is the case, rather than getting trapped in cross examination later in the case.

R. O. "Jake" Branyon, a director of the Associated Landscape Contractors of America, described the organizational work of ALCA and ways in which ALCA and ASCA members might support each other and their mutual interests. He described the landscaping and arboricultural industries as being "the most dynamic organizations today in the field of improving our environment." He added, "there may be close to $5 billion involved in all phases of tree and landscaping materials and we must inform the public of not only what we do but also the true value of the price of our services."

Branyon criticized (and his criticism was unanimously acclaimed by the ASCA members present) the USDA in publishing the 1972 Yearbook of Agriculture — "Landscape for Living," in which the only organization referred to was the American Association of Nurserymen out of the 204 organizations and societies in the fields related to landscaping.

In a discussion of the activities of the American Institute of Landscape Architects, F. J. MacDonald, executive vice president, presented a slide review of the type of work done by members of that association. He pointed out that "AILA is not only a strong organization in the U.S., but also has a large group in Canada and membership throughout the world."

ASCA member Lewis C. Peters, Baton Rouge, La., discussed the activities of several related organizations of which he is a member. The Association of Consulting Foresters and the Society of American Foresters "deal primarily with trees of the forest rather than those in municipal and ornamental plantings which are a specialty of the ASCA members. Membership in the SAF, founded in 1900 is over 17,000 while the ACF, founded in 1948 has over 200 members in the field of consulting."

Fred Micha, chairman of the case history committee of ASCA, described the work of the committee and the value in using their newly developed Field Report Form when filing claims for clients in respect to tree evaluations. Also described was the work of tabulating case history reports. It was pointed out that there is an increase in both input and in reference to the case history files.

New officers are: (l-r) Leslie S. Mayne, director; O. J. Andersen, vice president; W. Roland Shannon, president-elect; L. C. Chadwick and William P. Lanphear, directors; Spencer H. Davis, Jr., executive director.

been dropped. This could happen for any number of reasons.

The insurance man suggested that the best way to reduce rates is to follow the loss prevention practices as recommended by a safety engineer. After all, safety engineering is really safety education of employees, Dunton concluded.

Two speakers were on the program the next day. The first was Robert Smith, supervisor I, fleet administrator for the bureau of transportation, The City of Los Angeles, Calif. His topic was "Fleet Servicing For Profit."

Smith pointed out a number of items to consider in managing a fleet of vehicles. On replacement he said three important facts must be known: 1. the most economic replacement cycle, 2. balancing budget replacements, and 3, most acceptable replacement costs.

Larry Gromachey, area director, Occupational Safety and Health Administration, State of Arizona, was the last speaker on the program. He held an open OSHA forum for arborists.

Noting that there are 50 area directors for OSHA, Gromachey said, "We are all supposed to be singing out of the same hymn book (OSHA Act of 1970) but sometimes one or two sing off key."

Gromachey reviewed the history of occupational safety and health before the present law was passed.

He cited the three "E's" of safety as engineering, education and enforcement. Enforcement was the motivating force with the present OSHA, he said. "In 21 years of safety previous to OSHA compared to the last two years, I have talked with more people than ever before. Why? Management got interested."

New officers for the National Arborist Association are: John Shullenbarger, Gustin Gardens Tree Service, Inc., Gaithersburg, Md., president; W. Roland Shannon, Shannon Tree Co., Milford, Pa., first vice-president; Paul Ramsey, N. G. Gilbert Corp., Muncie, Ind., second vice-president; Thomas A. Morrison, H. A. Morrison, Wilmet, Ill. secretary, Boyd Haney, B. Haney and Sons, Inc., Franklin Park, Ill., treasurer. Larry Holkenborg, Holkenborg Landscape and Tree Service, Sandusky, Ohio, was elected a new director of the association. □

Everything you need for complete arborist service.

American Arborist offers a full line of famous quality tools, supplies and equipment for tree care. Names you know— Bashlin, Asplundh, Corona, Buckingham and hundreds more. Most items in stock for immediate shipment. Depend on the first name in arborist supplies—American.

WRITE FOR CATALOG AND PRICE LIST TODAY

American Arborist Supplies

DEPT. A, CONCORD INDUSTRIAL PARK
CONCORDVILLE, PA. 19331
PHONE: 215-459-1447

For More Details Circle (145) on Reply Card

For both VOLUME and PRESSURE

Use Hypro series 5200 Big Twin piston pumps.

Here's a rugged two-cylinder piston pump that will deliver up to 10 gpm at 400 psi (600 rpm) for tree spraying, area spraying, fogging, or termite pretreating.

Handles many kinds of weed and pest control chemicals including wettable powder suspensions.

Available with solid shaft or with hollow shaft for direct tractor, truck, or jeep PTO mounting.

FEATURES:

Leather or impregnated fabric piston cups.
Heavy duty ball bearings.
Suction & discharge ports tapped ¾" NPT.

Hypro / ISi®
A division of Lear Siegler, Inc.
347 Fifth Avenue NW, St. Paul, Minnesota 55112

For More Details Circle (143) on Reply Card

New England Chapter ISTC Meets; 150 Attend

The New England Chapter of the International Shade Tree Conference held their annual meeting in Danvers, Mass. in early February. About 150 members from the six state area and 30 exhibitors were present.

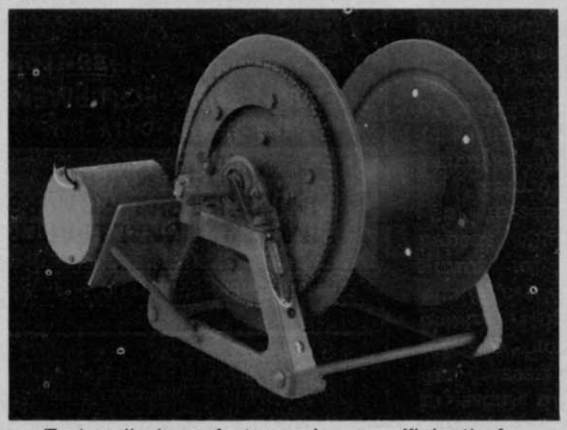
The two day program was organized by past president Tom Williams, Cheshire Tree Service, Inc., Cheshire, Conn. Dr. John A. Weidhass, Jr., I.S.T.C. president, was guest of honor. He presented a paper on "Which systemics should be used in your shade tree program?"

Officers elected for this year are: Erik H. Haupt, The Haupt Tree Company, Sheffield, Mass., president; Robert H. Little, Boston Edison Company, Needham, Mass., vice-president; Herbert J. Cran, Jr., Connecticut Light & Power Co., Hartford, Conn., 2nd vice-president; Dr. Malcolm A. McKenzie, director, Shade Tree Laboratories, University of Massachusetts, Amherst, Mass., secretary; Roscoe H. Batchelder, Batchelder Tree Service, Plymouth, N. H., treasurer; and Dr. Philip L. Rusden, Greenwich, Conn., editor.

The New England Chapter will act as host for the International Shade Tree Conference convention to be held in Boston, Aug. 12-16. They're calling this year's convention "The Boston Tree Party."

New England Chapter officers are: (front row l-r) Dr. Malcolm A. McKenzie, director of Shade Labs, secretary; Dr. John A. Weidhaas, Jr., ISTC president; Roscoe H. Batchelder, Batchelder Tree Service, treasurer; Herbert J. Cran, Jr., Conn. Light & Power Co., 2nd vice president. (back row) Thomas J. Williams, Cheshire Tree Service, past pres.; Robert H. Little, Boston Edison Co., vice president; Erik H. Haupt, The Haupt Tree Co., president. Not present is Dr. Philip L. Rusden, editor.

REELS to handle your spray hose



To handle hose faster and more efficiently for spraying pesticides, liquid fertilizers and other chemical products, specify Hannay reels. Available with air or electric powered rewind motors for fast, controlled rewinding of all hose lengths.

SEND FOR CATALOG NO. H-6612-ID

HANNAY REELS

CLIFFORD B. HANNAY & SON, INC., WESTERLO, NEW YORK 12193

ELM TREES CAN BE SAVED

SAVE OUR ELMS — CHECK BEFORE YOU CHOP

Yes, twelve years of successful results with over 6,000 trees have proven Freers Elm Arrester to be the number one method for the arrest and control of Dutch Elm Disease. Trained applicators can now successfully fight Dutch Elm Disease at a cost that is minimal.

Registered for use in Iowa, Illinois, Missouri, and Indiana under E P A reg. #7452-1.

distributed by ELM-R INC.

MUSCATINE, IOWA 52761

(319) 263-0211

CHECK BEFORE YOU CHOP!

For More Details Circle (116) on Reply Card

For More Details Circle (134) on Reply Card

—meeting dates—

Atlantic Provinces Turfgrass Conference and Exposition, Halifax, N.S., Canada, April 9-10.

Southeastern Turfgrass Conference, 27th Georgia Coastal Plain Experiment Station, Tifton, Ga., Apr. 9-11.

Annual Spring Institute (Horticulture), sponsored by the University of California agricultural extension and the Southern California Turfgrass Council, Quality Inn, 616 Convention Way, Anaheim, Calif., April 18-19.

Florida Turf-Grass Trade Show and Turf Management Clinics, Curtis Hixon Convention Hall and Manger Motor Inn, Tampa, Fla., April 29-May 2.

Pacific Seedsmen's Association, annual meeting, SS Queen Mary, Long Beach, Calif., April 29-May 2.

New York State Recreation and Park Conference and Exhibition, 33rd annual, Concord Hotel, Kiamesha Lake, N.Y., May 6-9.

Central Plains Turfgrass Field Day, Minor Park, Kansas City, Mo., May 8.

Florida Nurserymen and Growers Association, The Breakers Hotel, Palm Beach, Fla., May 17-19.

Rutgers Turfgrass Research Day, Dudley and College Farm Roads, College of Agriculture and Environmental Science, Rutgers University, New Brunswick, N.J., June 12.

Western Chapter, International Shade Tree Conference, annual meeting, Hotel Utah, Salt Lake City, Utah, June 17-20.

International Turfgrass Conference, 2nd annual, Virginia Polytechnic Institute and State University, Blacksburg, Va. June 19-21.

American Association of Nurserymen, Radisson Hotel, Minneapolis, Minn., July 14-18.

Hyacinth Control Society, Hotel Monteleon, New Orleans, July 15-18.

American Sod Producers Association, annual meeting, Denver, Colo., July 16-19.

International Shade Tree Conference, 49th annual meeting, Sheraton-Boston Hotel, Boston, Mass., Aug. 12-16.

North Dakota State Horticultural Society, annual meeting, Canada Department of Agriculture Research Station, Morden, Manitoba, Aug. 21-22.

Turf and Landscape Day, Ohio Agricultural Research and Development Center (OARDC), Wooster, Ohio, Sept. 11.

Course for Licensing of Tree Pruners, Agricultural Extension Centre, Brandon, Manitoba, Canada, Oct. 1-5.

Industrial Weed Control Conference, 8th annual, Texas A&M University, College Station, Tex., Oct. 15-17.

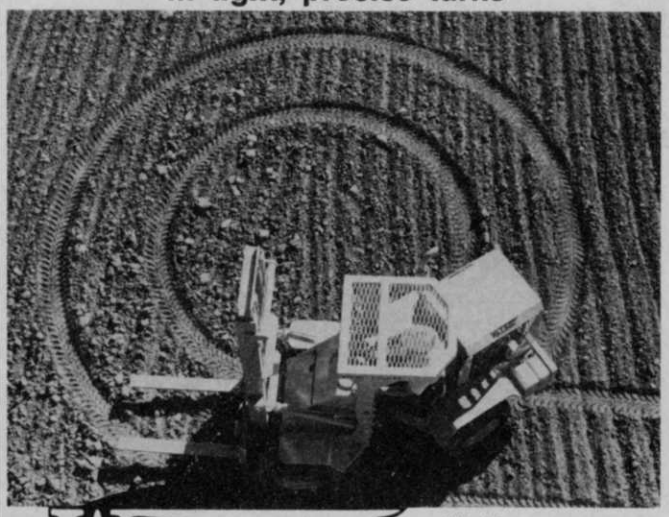
Central Plains Turfgrass Conference, Manhattan, Kans., Oct. 17-19.

California Weed Conference, Woodlake Inn, Sacramento, Calif., Jan. 21-23.

Southern Weed Science Society, Sheraton Biltmore Hotel, Atlanta, Ga., Jan. 22-24.

NO SKIDDING
or tearing of the surface

Rear wheels track front wheels in tight, precise turns



WALDON ALL HYDRAULIC TRACTOR

Highly maneuverable with articulating chassis

Compact enough to work in tight places

Full-time traction on all 4 wheels

WALDON's all-hydraulic feature makes for speed and ease of handling. You can make better use of your available power, because you can keep the power on. It's a smooth performer; a very easy machine to handle.

The articulation is another great feature. You can work in a very small space because Waldon is so maneuverable. And, it cuts down your cycle time.

Waldon's four-wheel drive power means you don't have to be completely level to get full power and use of the machine. Now your men can get more done per day.

Have us arrange a demonstration for you. Call or write for complete information.

WALDON, INC., Fairview, Ok. 73737
Phone 405-227-3711

Gentlemen: Please send complete information on your Waldon:

☐ Tractor and attachments ☐ Name of nearest dealer

Name _____

Co. Name _____

Address _____ WTT-4

For More Details Circle (102) on Reply Card

Postemergence Herbicide Announced By Monsanto

A new postemergence herbicide for the control of a broad spectrum of annual and perennial weeds and grasses has been announced by Monsanto Company's agricultural division.

Roundup is described by Monsanto spokesmen as a significant step forward in the control of hard-to-kill perennial weeds. The product has received much attention at most weed science society meetings this year.

Unlike some herbicides which control weeds by upsetting the chain of events that take place in photosynthesis (energy conversion), this compound is a glyphosate derivative that acts as an inhibitor of aeromatic amino acid snythesis. Since amino acid is considered one of nature's building blocks, the chemical has the effect of inhibiting natural plant growth.

Roundup is water soluble and provides high unit activity as a contact herbicide. It also translocates downward within the plant to control underground roots or rhizomes. At rates as low as one to two pounds product per acre tests have showed 100 percent control of rhizome Johnsongrass.

Initial potential uses for Roundup include industrial applications (highways, roadsides, fuel and power transmission rights-of-ways, airports, parking areas and railroads). It also has potential on drainage ditches and canals. It shows no evidence of soil movement. Preliminary studies indicate that it is inactivated when it comes in contact with the soil.

Mammalian toxicity of the compound is of a low order and fish and wildlife tolerance is high. Results of long term feeding studies have not been finalized, yet.

Roundup has not been registered by the Environmental Protection Agency at this time.

DuPont Ooze Irrigation Offered Free to Hort Men

Tests lengths of a new type of microporous tubing for ooze irrigation are to be offered free of charge to horticulturists as part of a Du Pont Company introductory program.

According to Richard C. Bergman of Du Pont, up to 1,500 feet of "Viaflo" porous plastic tubing will be supplied to a wide variety of greenhouse operators who will use the new product and report their reactions.

"Viaflo" is a flexible polyethylene tubing that is extremely strong and tear-resistant. It delivers a uniformly steady ooze of irrigating water through millions of micron-size holes. The microporous structure practically eliminates plugging when Du Pont filter recommendations are followed, Bergman said.

The tubing is three-quarters of an inch in width when flat and is packaged in 300-foot rolls. It is attachable to the water source by standard plastic couplings.

Because the tubing is unaffected by most chemicals, nutrients and other water soluble matter may be delivered to root systems through the "Viaflo" tubing, according to Bergman.

He said that the offer of free tubing to greenhouse operators is being made by Du Pont as the first step in development of a nationwide commercial distribution system to the horticulture industry.

TREES "IRON-SICK"?

TREE SYSTEMS *

MEDICAPS

Worth Over 400 Times Their Weight in Iron

New!!

Medicaps Trunk Injection For Fast Easy Charolais Remedy

ACCURATE
Premeasured, self-contained MEDICAPS "cartridges."

EFFECTIVE
Trees respond to MEDICAPS treatment in as little as 14 days. Tested by leading Universities.

ECONOMICAL
More efficient than soil or foliage applications. MEDICAPS efficiency means low cost with lasting results.

*U.S. Patent Pending

Write today for additional information on MEDICAPS, and the name of your nearby MEDICAPS distributor.

Creative Sales, Inc.

200 South Main Fremont, Nebraska 68025

For More Details Circle (144) on Reply Card

It's a snow thrower
It's a lawn thatcher
It's a leaf sweeper

SWEEPSTER ROTARY BROOM

IH®

Model AH SWEEPSTER

SWEEPSTER power brooms throw more snow than a snow thrower! In the spring, SWEEPSTER removes thatch and windrows it in one easy operation. In the fall, SWEEPSTER sweeps more leaves than a leaf sweeper! There's a full line of SWEEPSTERS to fit every IH tractor. You can order front, three point or loader-mounted SWEEPSTERS with hydraulic or PTO-drive, fixed or variable sweeping angle.

For more details write for brochure

SWEEPSTER®

Product of Jenkins Equipment Co.
2810 Baker Road • Dexter, Michigan 48130
Phone 313/426-3961

For More Details Circle (155) on Reply Card

—insect report—

INSECTS OF ORNAMENTALS

PIT SCALE
(Cerococcus Kalmiae)

VIRGINIA: Overwintering eggs under dead females on heavily invested azalea in Norfolk. Collected February 15. This is second record of species in this State.

AN ERIOPHYID MITE
(Trisetacus juniperinus)

VIRGINIA: Severely infested Japanese garden juniper, Juniperus procumbens, in Falls Church, Fairfax County. Collected January 18, 1973. This is a new State record.

LONGTAILED MEALYBUG
(Pseudococcus longispinus)

FLORIDA: Nymphs and adults severely infested 24 to 40 sago palms, Cycas revoluta, around public buildings at Tampa, Hillsborough County.

GREEN PEACH APHID
(Myzus persicae)

ARIZONA: Abundant on weeds, ornamentals, and bedding plants in all areas of Salt River Valley, Maricopa County.

TREE INSECTS

SPRING CANKERWORM
(Paleacrita vernata)

KANSAS: Expected to be serious problem in 1973 on some elms, hackberries, and certain other trees in some eastern area cities during spring. Significant moth activity in Manhattan, Riley County, noted at lights and on trunks of elms and hackberries night of March 1. Males ranged 0-30 per tree on lower portions of trunks. High count of 4 females per trunk also noted. Examinations of fresh sticky bands on some elms in Topeka, Shawnee County, March 2 revealed significant moth activity. Up to 150 males and 30 females found in sticky bands on some larger elms.

MOUNTAIN PINE BEETLE
(Dendroctonus ponderosae)

CALIFORNIA: Epidemic infestations killed hundreds of lodgepole pines on south end of Lake Tahoe. About 150 acres of private land involved.

BENEFICIAL INSECTS

PENTATOMID
(Euthyrhynchus floridanus)

MISSOURI: This predaceous species collected on oak at Portageville, New Madrid County, September 28, 1972. This is a new State record.

ICHNEUMON WASP
(Bathyplectes curculionis)

MISSOURI: This parasite of *"Hypera postica"* (alfalfa weevil) recovered from alfalfa field in Ray County February 6, 1973. This is a new county record.

EDITORIAL *(from page 6)*

". . . . More and more we learn that the world is not waiting to hear from us but that if we speak to our conviction loud and hard and often our legitimate points will be heard and will have impact . . ." Waiting for government standards will be a compromise that in the end will lead to discontent.

T38 3 GANG!

THE
MONEY MACHINE
BY
MOTT

ONE TRACTOR
ONE OPERATOR
THREE MOWERS
SAVES TIME
TIME IS MONEY

MOWERS ARE
HAMMER KNIFE®
SAFETY FLAILS
SAFETY IS MONEY

$ $ $ $ $ $ $ $ $ $ $ $ $ $

MOTT® HAMMER KNIFE® FLAILS
MOW LAWNS • SHRED WEEDS
MULCH LEAVES • RENOVATE
IN AREAS CLEAN OR TRASHY
IN CONDITIONS DRY OR WET
YEAR AFTER YEAR AFTER YEAR
(WOULD YOU BELIEVE UP TO 10-20 YEARS?)
THEY PRODUCE
PRODUCTIVITY IS MONEY

MOWERS YOU NEED
MOWERS WE'VE GOT
FROM 24" WALK BEHINDS
TO 19 FOOT GANGS

COMMUNICATE — WE'LL DEMONSTRATE
YOUR COST? JUST A LITTLE OF YOUR TIME.

MOTT CORPORATION
514 SHAWMUT AVE., LA GRANGE, ILL. 60525

$ $ $ $ $ $ $ $ $ $ $ $ $ $

T38 8 HP 38" PULL TYPE MOTT mowers can be used singly or in gangs of 2 or 3 units and can also be paired with 60" or 72" front or rear mounted tractor powered MOTT mowers.

For More Details Circle (132) on Reply Card

TREE INJECTION SYSTEMS *(from page 15)*

controlled studies in laboratories where Benlate has demonstrated unquestionably its ability to control the disease. Field studies have not generated quite the same positive response, however, and herein lies the doubt.

Almost everyone will agree that more field studies are needed and data thoroughly analyzed before a conclusive recommendation is made. This accounts for the kind of "holding back" response of certain state regulatory agencies and a few extension service pathologists. Even the Du Pont Company, manufacturer of the compound, has been most conservative in promoting the product for this purpose. The nature of the disease in affected trees is such that no one can be positive that treatment will be 100 percent effective. Some trees respond to treatment and some don't.

Since all injection systems utilize Benlate as the material for treatment each has about as much success as the next in the actual control of the disease. Lack of control is not the fault of the equipment and not the fault of the chemical. Rather, it is interaction of the disease and the physiology of the tree.

It has been pointed out that the benomyl (active ingredient of Benlate) molecule is essentially insoluble. WEEDS TREES AND TURF has also reported that scientists have achieved a breakthrough in solublizing this chemical (See WTT, April 1972, p. 13). Thus, scientists hope that by making the chemical soluble, it will be in a form more readily acceptable to the diseased tree.

Only a very small amount of the chemical is needed to control the disease in the lab. The same small amount is needed in the tree at the point of infection. Present systems place the chemical into the xylem tissues in the trunk. But with the exception of the high pressure injectors, these systems rely on the tree to move the material from the point of application to the diseased tissue. Solublizing benomyl will hopefully aid the tree in transporting the chemical, but many tests must be conducted before anyone can begin to predict with accuracy the degree of control.

In the meantime, injectors developed by corporations such as Systemic Implant Reservior Corp. are the result of endless hours of experimentation, consultation, and perfection. Given an elm that has just contracted the disease, SIReservoir injectors have demonstrated a high degree of reliability in dispersing chemical to the tree.

Specific case histories are, as yet, few. SIReservoirs injectors are new and many arborists are only now hearing about them. In Wisconsin, where probably more American elms were treated with Benlate last year than in any other state, these injectors were used in a goodly number of elms saved.

One specific instance was that of a newly diseased elm on the lakeshore property of a Madison insurance man. Flagging was estimated at about five percent. Treatment with Benlate and SIReservoir injectors was begun immediately. Repeated dosages were made at one week intervals for about six weeks. At that time it appeared as though the disease was arrested.

Arborists treating DED with Benlate should not think of the job in the same terms as correcting iron chlorosis. There's a great deal more to consider in order to get the same results. At this time trees with less than 10% crown will have about a

ARPS LANDSCAPE RAKES

Unmatched for strength, quality and durability . . . they stand the test of time after day-in, day-out service.

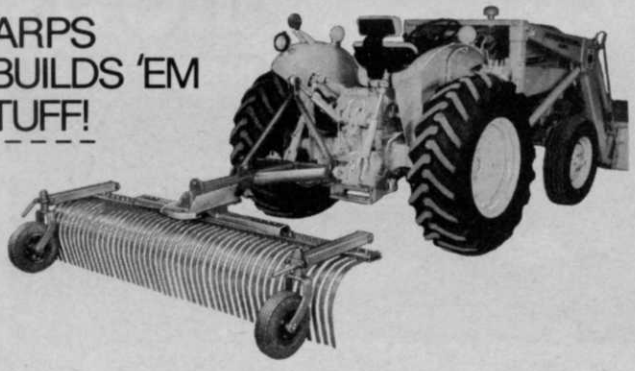
- hardened spring steel tines
- three frame models
- 6 or 8 foot rakes
- Easy on-off mounting
- single or dual deluxe or economy gage wheels

Free literature? Just write.

ARPS CORPORATION
A CHROMALLOY AMERICAN SUBSIDIARY
NEW HOLSTEIN, WISCONSIN 53061

ARPS

ARPS BUILDS 'EM TUFF!



For More Details Circle (104) on Reply Card

TURF PROFESSIONALS KNOW WHAT THEY WANT in grass seed performance!

...MAN MADE Adelphi KENTUCKY BLUEGRASS

(U.S. Plant Patent No. 3150)

GIVES THEM WHAT THEY WANT*

MAN-CONTROLLED BREEDING gives it DARKER GREEN COLOR & TOP RATINGS for OVERALL PERFORMANCE

*For details and/or Informative Free Booklet, contact:

J & L ADIKES, Inc., Jamaica, New York 11423
JONATHAN GREEN & SONS, Kearny, N.J. 07032
NORTHRUP, KING & CO., Minneapolis, Minn. 55413
VAUGHAN'S SEED CO., Bound Brook, N.J. • Downers Grove, Ill.

For More Details Circle (146) on Reply Card

Auto hoe "NO MORE BACK BREAKING LABOR"

HOEING WEEDS - MULCHING CULTIVATING BETWEEN ROWS AND PLANTS . . . SPADING . . . TILLING

Self-propelled - User Designed and Custom Built As A Hoe

Four models available . . . fully factory warrantied . . . 30 day trial and time payment plan to enable you to join the thousands of others who own and are using Auto Hoe. Write today for FREE colored literature.

AUTO HOE INC. DE PERE, 34 WIS. 54115

For More Details Circle (141) on Reply Card

50-50 chance of pulling through. Best results occur when the arborist spots flagging in the initial stages and begins treatment immediately.

The sharp arborist eyes the situation beginning at the tree top and then moves down to take in such things as other elms adjacent to the diseased elm, elm bark beetle infestations, regular tree maintenance and other standard practices. Of equal importance is nearby dead elms which continue to be the main source of disease.

Many arborists are beginning to report increased use of injection systems because of a willingness of the customer to do something about a diseased elm and the potential for making a sale by treating the elm. As one homeowner explains it, "It is better to spend a few dollars to try to save an elm than to spend several hundred dollars to have it removed. We want to keep our trees, not have them removed."

The future of SIReservoir appears optimistic. Its success in Wisconsin last year is expected to be duplicated in other states this coming season. And as more knowledge is gained in the control of DED, this injection system will no doubt play an even bigger role.□

All-Ohio Safety Congress Feature Arborist Session

The 43rd All-Ohio Safety Congress will be held at the Sheraton-Columbus Hotel, Columbus, Ohio on April 10-12. A special arborists and tree service operators session is planned for April 11.

Theme of this year's session is "Safety is a Shield." The current program of the all day session includes nine speakers.

Topics include what manufacturers are doing about noise abatement, chain saw safety, employee safety practices, treatment of accident victims, rope safety and the tree of life safety program.

For more details, contact Dr. L. C. Chadwick, 3634 Olentangy Blvd., Columbus, Ohio 43214.

Turf Products Catalog Issued By Toro

The Toro Company, has announced the availability of its 1973 institutional catalog of turf maintenance equipment.

The catalog contains double-page reproductions of nine full-color photographs of the Toro equipment. On the fly-leaf of the left-hand pages are complete specifications on the various models of each machine and their accessories.

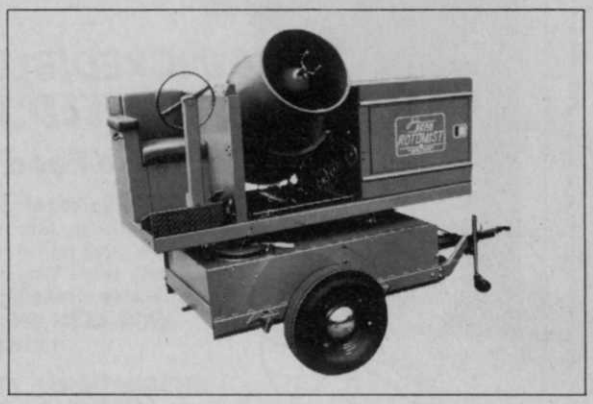
Penn-Del Chapter, I.S.T.C. Holds Arborists Course

The Penn-Del Chapter, International Shade Tree Conference and the Pennsylvania State University have just completed a course for beginning arborists in Philadelphia.

Twenty students enrolled in the week-long course which was taught by Andrew Moore, Mayland Professional Tree Surgery, Lansdale, Pa. Moore designed the course of instruction as part of his duties as chairman of the educational committee for the Penn-Del Chapter. Students had classroom instruction for half the day and field training during the second half.

Stressed in the sessions was climbing, pruning, use of hand and power tools, tree removal, wound treatment, climber's safety, tree identification and other important aspects of arboriculture.

The Fairmount Park Commission, Philadelphia, provided the field laboratory for students to work.



Get the tops in shade tree spraying

John Bean ROTOMIST sprayers have the power to put protection where it's needed most—in the tops of the trees. Straight-through air delivery, unrestricted by elbows, angled air passages or deflectors, breaks up droplets for uniform deposit of chemicals and carries them throughout the tree for full coverage, economically and fast. □ ROTOMIST sprayers are available in four basic models for all kinds of spraying jobs from trees and shrubs to mosquito and fly control, weed and brush spraying, windrowing leaves, spraying livestock, zoos and other areas where pesticides are needed. Find out how to save from 50 to 75% on equipment and labor with multi-purpose ROTOMIST. Ask your John Bean dealer now.

fmc CORPORATION

AGRICULTURAL EQUIPMENT
JOHN BEAN
DIVISION
Jonesboro, Ark.—Ocoee, Fla.—San Jose, Calif.

For More Details Circle (133) on Reply Card

PROTECTION FROM EXPOSURE *(from page 37)*

shirt-type undershirt.

Under such conditions workers should be encouraged to at least wear a long-sleeved cloth jacket, overalls, or tightly-woven heavy grade shirt that will not be easily penetrated by pesticide, and preferably one that can be properly washed.

Clothing should be changed and laundered daily.

If shirts, jackets, or coveralls used during application are merely hung up to dry after work and used repeatedly, as is often the practice, it doesn't take long for the pesticide material to work through where it will make contact with underclothes or skin.

Although waterproof protective clothing, and especially jackets, are often kept close at hand by pesticide applicators, it has been our observation that they usually will not put on the clothing until drift of pesticide increases to the point where they feel protection is necessary. Unfortunately, by this time there is often considerable contamination of skin and conventional clothing. *Covering contaminated skin by impermeable protective gear may create conditions which lead to increased absorption.*

Whether or not there would be less absorption under these conditions than if the protective clothing were left off entirely, depends upon the potential exposure which might occur after the worker puts on the clothing. Although the amount of increase in absorption of pesticides by covering contaminated skin with various items of protective clothing is not known, it is certainly sound advice to put on protective gear before the skin has been contaminated to any great degree.

High exposure to hands is usually the result of contact with the more concentrated formulations during mixing and loading. The hands are more subject to cuts and abrasions which allow a more direct route into the body.

This brings to attention the need for wearing gloves. Some feel it is better not to wear gloves that are somewhat contaminated on the inside; something which invariably occurs to some degree. This sounds logical; however, our research indicates that, unless there is gross contamination of the inside of the gloves, the potential exposure is less when wearing gloves than when not wearing them, regardless of a certain amount of inside contamination.

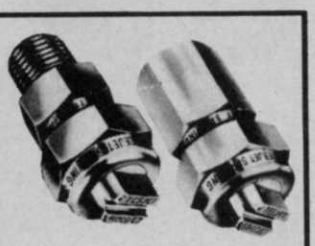
Gloves should be kept clean on the inside; thus, cloth linings are undesirable because of the difficulty in decontamination. *Unlined rubber gauntlet gloves provide the best protection.* Heavyweight gloves, although durable, do not allow adesuate freedom of movement, especially finger flexibility, and they are also difficult to turn inside-out for cleaning. On the other hand, some lightweight gloves, although flexible enough to allow freedom of finger movement, wear out rapidly and are easily torn. Therefore, it is advisable to secure gloves of a grade that is somewhat durable but yet light enough to be acceptable to the worker.

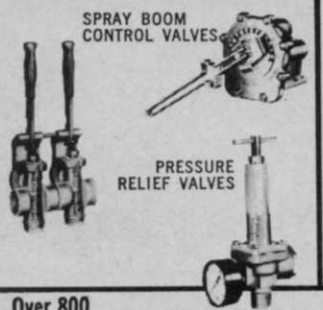
Comfort and acceptability by the worker is also important when selecting protective jackets and trousers. Heavy grade clothing is not very flexible and dark-colored materials absorb more heat. During recent years several jackets, jacket-trouser combinations, and gloves that are lighter in color and weight have been available. Although less dur-

SPRAYING SYSTEMS CO.

TeeJet®

SPRAY NOZZLES AND ACCESSORIES





Over 800 INTERCHANGEABLE SPRAY TIP TYPES AND CAPACITIES... tapered edge, even and wide angle flat spray ... hollow and full cone ... disc type hollow and full cone ... and flow regulators. The most complete line for spraying herbicides, insecticides, fungicides, liquid fertilizers and foam solutions. All materials. *For complete information write for Catalog 35 ... and for foam spraying ask for Data Sheets 13602 and 13626.*

SPRAYING SYSTEMS CO.

North Ave. at Schmale Rd., Wheaton, Ill. 60187

Telephone: 312 665-5000 / Telex No. 72-8409

PROMPT SHIPMENT FROM STOCK

AN INCREDIBLE NEW WAY TO FEED TREES!

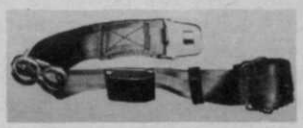
Jobe's Tree Food Spikes

Pound these spikes of high-analysis 16-8-8 fertilizer into the ground around trees, and rain does the rest. **"Nearly three times faster** than drilling," states a leading university. Write us for details plus the university report.

INTERNATIONAL SPIKE, INC.
462 East High Street
Lexington, Kentucky 40508

For More Details Circle (147) on Reply Card

WE TELL IT STRAIGHT. NOT EVERYONE NEEDS A RIGGIN'-BUDDY. (BUT THEN, NOT EVERYBODY NEEDS POWER SAWS, ROPES OR CLIMBING SADDLES EITHER.)



Developed by a Tree Man to MEET TREE MEN'S NEEDS!

STILL ONLY $17.98

From: P.D.I.
200 Sylvan Ave.
Rutledge, Pa. 19070

THE RIGGIN'-BUDDY® ISN'T NEW ANYMORE ... IT IS PROVEN!

For More Details Circle (142) on Reply Card

able, they are less costly to replace. Our tests have shown that a light yellow or white waterproof jacket may reflect enough heat to cause the temperature at the skin surface underneath to be as much as 8 to 10°F lower than when wearing a black jacket when worn under conditions of intense sunlight when ambient temperature is around 90°F. Nevertheless, there is still considerable discomfort in wearing any waterproof clothing during hot weather because of the trapping of body heat.

Disposable paper jackets have been tested and found suitable for use only under conditions where heavy wetting does not occur. Such paper jackets were found to be much cooler and thus more comfortable than other jackets tested.

Respiratory Route

Protection of the respiratory route is especially important where toxic dusts and vapors or very small spray droplets are prevalent, or where application is in confined spaces. We have found that when applying dilute sprays with conventional application equipment respiratory exposure is usually relatively low, probably due to the large droplet sizes produced. Where low volume equipment is used, smaller particles or droplets are produced, increasing respiratory exposure.

Respiratory protection for most types of outdoor application can be provided by use of cartridge-type respirators, or, in certain cases, gas mask-type respirator devices with special cannisters which have greater absorbent capacity than cartridges. Proper care of respirators is important, especially the regular replacement of filter cartridges and regular cleaning of the face-piece with soap and water. Solvents should not be used for they may damage certain parts of the respirator. When fumigating or applying highly toxic pesticides in confined spaces it is advisable to use a respirator with a special compressed air supply tank so that none of the contaminated ambient air is inhaled.

Oral Route

The most serious oral exposure may be brought about by splashing of liquid concentrate into the mouth while pouring and measuring pesticides. Contamination may also occur through licking the lips, by rubbing the mouth with contaminated arms or hands, by careless actions such as attempting to blow out clogged spray nozzles with the mouth, or by eating, smoking, or drinking while hands are contaminated. Pesticide label precautionery statements to the effect that hands should be washed before smoking or eating is sound advice.

Discussion

Regardless of how specifically the measures for protection of workers from pesticide exposure may be stated for any particular situation, people who work with such compounds must realize that there is some element of risk involved. Accidents occur, even among workers who are careful. The importance of dermal and respiratory exposure certainly warrants the use of some type of protective gear. Improvements in protective equipment are needed to bring about better protecion of workers. We at the Environmental Protection Agency, Wenatchee Research Station laboratory are continuing with studies on protective gear to determine effectiveness and acceptability. □

REFERENCES

Bidstrup, P. L., and D. J. H. Payne. 1951. Poisoning by dinitro-orthocresol. Brit. Med. J. 2:16.

Maibach, H. E., R. J. Feldmann, T. H. Milby, and W. F. Serat. 1971. Regional variation in percutaneous penetration in man. Arch. Environ. Health 23:208.

Malone, J. D. G. et al. 1971. Paraquat poisoning — A review of nineteen cases. J. Irish Med. Assoc. 64:59.

Masterson, J. G. and W. J. Roche. 1970. Fatal paraquat poisoning. J. Irish Med. Assoc. 63:261.

National Clearinghouse for Poison Control Centers. 1972. Toxic insecticides to replace DDT. Bulletin, Nov.-Dec. 1972. U.S. Department of Health, Education, and Welfare, Food and Drug Administration, Bureau of Product Safety.

Swan, A. A. B. 1969. Exposure of spray operators to paraquat. Brit. J. Industr. Med. 26:322.

Wolfe, H. R., W. F. Durham, and G. S. Batchelor. 1961. Health hazards of some dinitro compounds. Effects associated with agricultural usage in Washington State. Arch. Environ. Health 3:468.

Pipe Piper ®

THE ORIGINAL VIBRATORY PLOW.

The faster, lower cost way to install sprinkler pipe

PIPE PIPER makes pipe burying a fast, easy job and assures customer satisfaction because no turf or earth is removed. You can bury flexible and semi-flexible pipe up to 2" diameter in one continuous operation around corners, shrubbery, and other obstacles. You can also use the PIPE PIPER to install low voltage lighting and communication systems.

- ONE-MAN OPERATION
- SAVES 80% ON LABOR
- NO DAMAGE TO TURF
- NO TRENCH TO FILL

Write for free brochure.

JACOBSEN MANUFACTURING CO.
Sod Master Division
3456 WASHINGTON AVE. NO.
MINNEAPOLIS, MINN. 55412

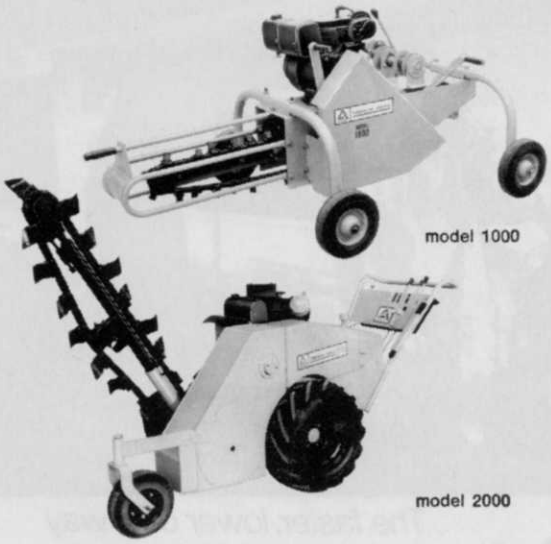
For More Details Circle (105) on Reply Card

Plastic Stakes and Signs: Coursigns, Inc., Chicago, Ill.

Make signs do your communications job. These high yellow signs are of heavy-duty plastic construction. Signs are 2½ inches deep and 8 inches wide. They slip fit and lock on to a 12 inch or 14 inch stake. Stakes have a wedge type rope notch which provides for rapid assembly and take down. A 3/16 inch rope is available in conjunction with the stakes and signs to rope off seeded, wet or worn areas. For more details, circle (705) on the reply card.

Backhoe/Loader: J I Case Company, Racine, Wisc.

This 780 backhoe/loader is now available with an optional turbocharged engine. Direct injection, open chamber design and spiral intake passages offers big capacity, free air flow and thorough mixing capacity in the combustion chamber. Engine is rated at 120 hp. Backhoe/loader features include a 21,000 lb. working weight, unitized main frame weighing 1½ tons, and a two speed full powershift transmission with torquio converter. Backhoe digs to a depth of 18 feet and reaches 22 feet 6½ inches from swing pivot. Loader features hydraulic self-leveling design. For more details, circle (706) on the reply card.



Safety-Designed Trenchers: Arps Corporation, New Holstein, Wisc.

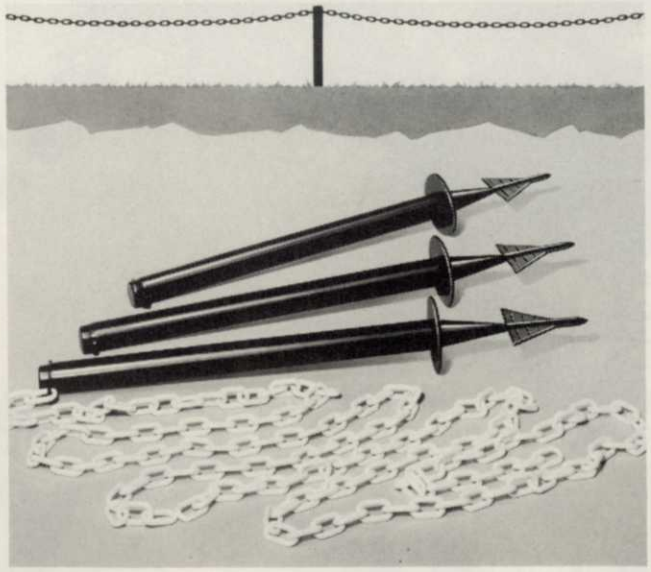
Safe, easy operation and rugged dependability are spotlighted on these two Trench Devils. Models 1000 and 2000 are designed to allow complete control of the digging function away from the digging end of the machine, thereby keeping operator clear of moving parts. Trencher pictured at top is lightweight and portable. Digging widths of 2¼ or 3¼ inches and depths of 18 or 24 inches are available. Standard features on Model 2000 include infinitely variable hydrostatic transmissions, hydraulically operated boom, top mounted reservois and ammeter. Cutter widths are 3 to 8 inches and boom depths are available in 2, 3, or 4 foot capacities. For more details, circle (707) on the reply card.

SPRIG PLANTER: Bermuda King Company, Okarche, Okla.

Bermudagrass popularity is growing. Quick coverage in thick stands is what users want. This new four-row sprig planter can do the job in short order. Mounted on the standard three-row frame, the planter double-sprigs in closely spaced rows of 20 inches, in one operation. Unit completely cultivates the ground and with its quick coverage, eliminates the competition of unwanted grasses and weeds. Handles sprigs of Bermuda as well as Alisa, Zimmerly, Coast Cross, Pangola and other top-growth root planting with ease. For more details, circle (708) on the reply card.

Model 1000 Tractor: Tractor and Implement Operations, Ford Motor Company, Troy, Mich.

If you're looking for a grounds-maintenance tractor that will handle a variety of jobs, consider this 23 hp tractor from Ford. It offers rugged styling and extra visibility teamed up with a two-cylinder diesel engine and a nine-speed transmission. Attachments for this tractor include a mid-mounted rotary mower, a front loader, front mounted blade and a rear-mounted rotary tiller. Transmission PTO gives 540 rpm at 1,955 engine rpm. Tractor has Category I, live three-point hydraulics. Comes equipped with creature comforts including, roomy step plates, bucket-type cushion operator seat and key ignition. For more details, circle (709) on the reply card.

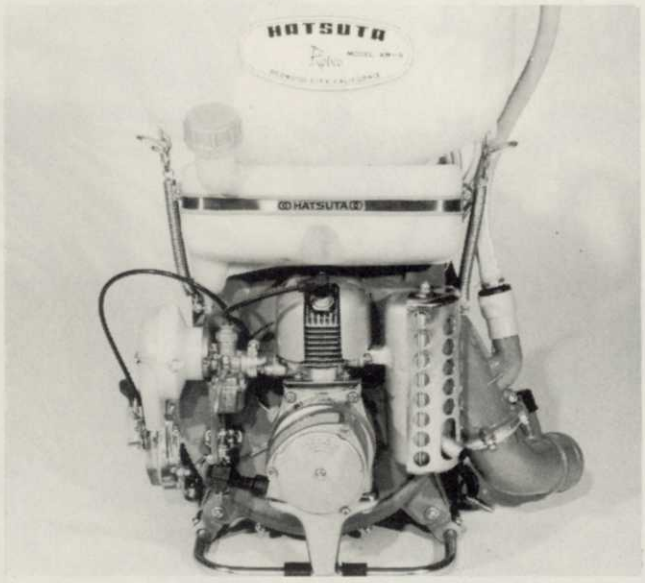


Plastic Chain: PCC Corporation, Hebron, Ill.

Put the prestige look into your plant grounds, walkways or other areas. Add low-cost, easy-to-handle, high-density polyethylene chain. Its molded in several sizes. Because it's plastic it is non-conductive, non-magnetic and can't rust or corrode. It stays bright and clean for years with low maintenance. Three sizes are available. Tensile strengths range from 18 lbs. for small chain to 300 lbs. for large chain. Stakes are heavy grade plastic construction. For more details, circle (710) on the reply card.

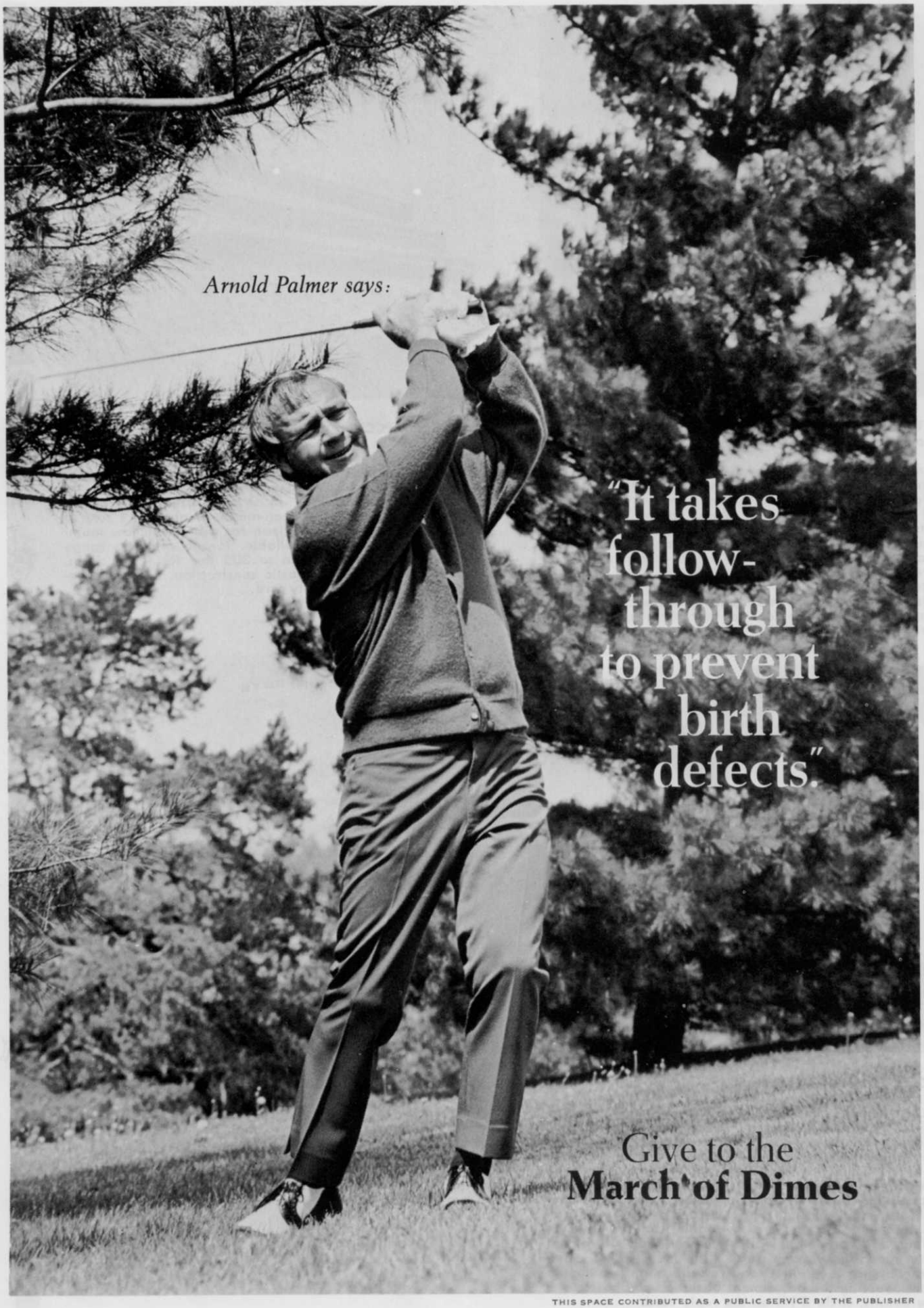
INCLINOMETER: Milben Corporation, Ingleside, Ill.

How much incline is too much? Avoid unnecessary tips and spills with this unique Strawson Inclinometer. It operates on the pendulum principle through reciprocating rods mounted in gimbals. Unit was developed to replace the conventional bubble type level which in many instances is too sensitive for quick and accurate reading. Combined audio-visual warning system is easily installed in all types of off-the-road vehicles, mobile lifting platforms, buckets, tractors and other equipment. Models are available for six, twelve, twenty-four and forty-eight volt systems D.C. It's designed for flange mounting on any part of the main frame. Minimum maintenance is required and re-calibration is a simple operation involving the adjustment of three leveling screws. For more details, circle (711) on the reply card.



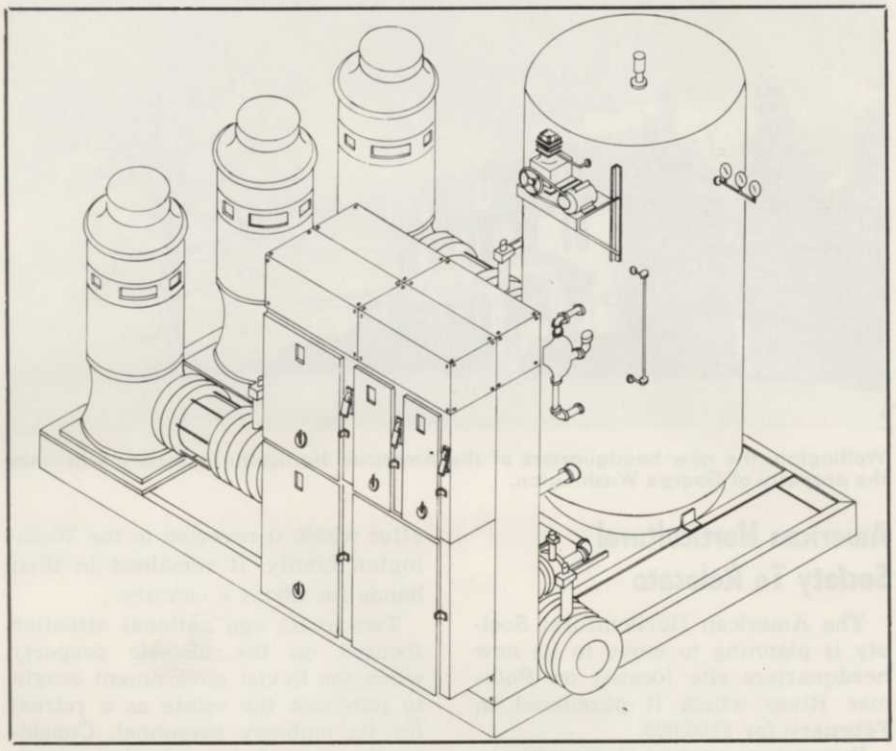
Sprayer-Duster-Blower: Robco Inc., Redwood City, Calif.

Here's a new lightweight back-pack mist sprayer-duster-blower that can go anywhere a man can walk. It packs a powerful 240 mph blast. Helpful in clean-up work, with a range of over 35 feet for either spraying or dusting. Great for blowing leaves and lawn cleanup. Just let your imagination go and you will quickly find a use for this machine. For more details, circle (712) on the reply card.



THIS SPACE CONTRIBUTED AS A PUBLIC SERVICE BY THE PUBLISHER

Pumping Plant Package Makes Irrigation Design Easy



Modular construction in golf course irrigation systems is sweeping new life into the industry. Pumping plant modules seem to be where all the action is.

Latest unit to make the scene is called Hydro-Pac. It's made by Irrigation Supply Co., Inc. of Louisville, Ky. It essentially is a drop-in package that can be hooked up to an irrigation system in about as much time as it takes to read the operating instruction booklet.

Everything is built and pre-tested at the factory. This eliminates much time lost in testing and adjusting on-the-job. Efficiency in design assures lowest operating and maintenance cost for the owner.

About the only items an owner need do is connect the electrical supply and discharge piping and bolt the columns to the discharge head.

Constant pressure is maintained on the Hydro-Pac System by use of pressure regulating valves and modern control techniques keep operation at peak efficiency regardless of system demands.

The pumping plant is fully automatic, using vertical, centrifugal or turbine pumps. The plant consists of three pumps operating on a demand basis until total output has been reached.

Each plant is equipped with a main disconnect along with all starting equipment. Transformers for 120 volt single phase current are supplied. System carries a one year warranty. For more details, circle (720) on the reply card.

Why Use Oregon FINE FESCUES for Overseeding?

FESCUES Fare Well During Dry Spells
OREGON FESCUES Grow Well in Shade
FAST GERMINATION – Blends With Other Grasses

THE FAIRWAY GRASS . . . WHEN WATER'S SHORT . . . FESCUES KEEP ON GROWING

FREE OVERSEEDING BROCHURE

FILL OUT COUPON, CLIP and MAIL TO:

OREGON CHEWINGS AND CREEPING RED FESCUE COMMISSION
1349 Capitol N.E., Salem, Oregon 97303

Name .....

Address .....

State ..... Zip .....

OREGON CHEWINGS AND CREEPING RED FESCUE COMMISSION
1349 Capitol St. N.E., Salem, Oregon 97303

For More Details On Preceding Page Circle (137) On Reply Card

Wellington, the new headquarters of the American Horticultural Society was once the property of George Washington.

American Horticultural Society To Relocate

The American Horticultural Society is planning to move to its new headquarters site located on Potomac River which it purchased in February for $800,000.

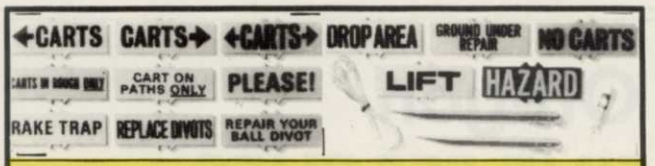
It was once part of George Washington's River farm, belonging to the first president's extensive Mount Vernon holdings. Washington gave it to Tobias Lear, his private secretary, who lived there until his death after which it reverted to the Washington family. It remained in their hands for about a century.

Two years ago national attention focused on the historic property when the Soviet government sought to purchase the estate as a retreat for its embassy personnel. Considerable protest by private citizens led the U. S. Department of State to disapprove the purchase. At that time Congress enacted a law forbidding property belonging to a former president from being sold to foreign interests.

The Society plans to develop the newly acquired Potomac riverfront site as a national center of gardening and horticulture. Activities and exhibits will stress the social as well as the esthetic role of gardening in improving the environment.

According to executive director, O. Keister Evans, the Society will move in late March from the modern office building in Alexandria where its staff is now spread on three floors. This is the second move in two years for Evans and his staff who have watched the Society blossom as its membership increased seven-fold in just 20 months.

The Horticultural Society intends to develop a National Center of Gardening and Horticulture on the site, featuring activities and exhibits that would stress the social as well as the esthetic role of gardening in improving our environment. Special programs will emphasize urban horticulture and the urban landscape while environmental activities will also be featured. A particular effort will be directed toward introducing young people to "environmental gardening" and senior citizens to "plant-oriented leisure activities."



SIGNS AND STAKES

High impact plastic STAKES AND SIGNS designed to direct golf carts and golfers away from wet, worn, seeded or sodded areas. Design provides wedge type rope notch for economical installation and removal. Choice of 14 sign inscriptions fit over any stake.

12" stakes ..... $30.00 per hundred
14" stakes ..... $34.00 per hundred
Signs ..... $40.00 per hundred
(Choice of any mix of inscriptions)
Rope ..... $25.00 per thousand ft.
(3/16" polypropylene—yellow)
Minimum order $50.00

Write for **FREE** samples

COURSIGNS, INC.

6502 N. Clark St.
CHICAGO, ILLINOIS 60626
(312) 465-6330

RED RIDER

THE THREE SEATER WITH TWENTY-THREE FEET!

- Seats Three Men Up Front
- Carries 23 cubic feet Out Back
- Also available in 8 and 10 H.P. models
- Simple Maintenance
- Completely Dependable

SMITHCO inc.
WAYNE, PA. 19087

● *Ask for Demonstration. Write for Information.*

For More Details Circle (153) on Reply Card

For More Details Circle (139) on Reply Card

MERTECT® 140-F. Tough on disease. Easy on you.

You can easily control the major turf diseases with nonmercurial MERTECT 140-F. It works systemically against dollar spot, brown patch, and *Fusarium* patch.

But along with that, it also saves you time and money.

Measuring, mixing, and dispersion are easier because MERTECT 140-F is flowable. It won't clog spray nozzles even in low-volume fairway spraying. Its long residual (2-3 weeks) control means fewer applications. And the low dosage rate makes it economical.

Follow the simple instructions on the label. MERTECT 140-F is not phytotoxic to grasses when used as directed. See your Merck distributor for a supply now. Or write us for his name.

Agricultural Products,
Merck Chemical Division,
Rahway, N.J. 07065.

MERCK

Measure out the recommended amount of MERTECT 140-F (1-2 fl oz in 5-10 gal of water/1,000 sq ft). Notice the handy pouring spout included with each gallon.

Pour the measured amount directly into the spray tank. No need for a slurry, no hard-to-handle powder to mess with.

Just spray on the effective disease control of MERTECT 140-F. MERTECT 140-F requires minimum agitation and does not clog spray nozzles even in low-volume fairway spraying.

For More Details Circle (131) on Reply Card

Checklist of Cultivated Hollics Now Available

The first part of an International Checklist of Cultivated *Ilex* (holly) is now available for distribution.

It is contribution No. 3 of the U.S. National Arboretum. Researchers have worked since 1964 in assembling and compiling this authoritative checklist. It describes more than 1,000 named cultivars of this widely grown native American holly.

For a copy of the checklist, write: International Checklist Committee for Cultivated *Ilex* U. S. National Arboretum, Washington, D. C. 20002.

Association VP Backs Green Industry Movement

Sustaining clean air machines through lawns, trees and gardens is making a worthy contribution to life, according to the executive vice president of the Florida Nurserymen and Growers Association.

In a release by the association, James F. Griffin, Jr. says it is reported that the percentage of carbon dioxide in our atmosphere is steadily increasing. This is due to the burning of fossil fuels to generate electric power, run our automobiles and factories, heat and cool our homes.

At the same time, more and more earth is being covered by highways, parking lots and buildings of all kinds. This is unfortunate, he says, since only green growth can metabolize excess carbon dioxide into growing plants, through the process of photosynthesis.

He says that one approach to the dilemma has been suggested by John Fischer in a recent issue of Harpers magazine. He agrees with Fischer in thinking that the next "Heroes of the Republic" may be those who plant trees instead of subtracting from our greenery with bulldozer and saw. Griffin further adds that Fischer might have included as heroes those who plant and nurture grass, shrubbery and gardens.

The association vice president says other positive action has been suggested. This would include mandatory provision for minimum land-use ratios of greenery in any new land development for homes, institutions, office buildings, industrial sites and shopping centers.

Griffin says that the Florida Nurserymen and Growers Association has provided model landscape and tree ordinances to many major Florida cities.

In addition, he adds, wherever possible green belts should be installed along highways and roadsides. The green leaves of trees and other plants trap pollutants which are then washed into the soil where they disintegrate into basic soil elements. Such green belts, when properly planted, provide tremendously effective sound baffles and barriers thereby reducing the effects of sound pollution by many decibels.

Ohio Chapter, I. S. T. C. Elects Officers

New officers of the Ohio Chapter, International Shade Tree Conference are: Kenneth H. Funk, Funk Bros. Tree Service, Inc., Ashland, president; Gary P. Mitten, Ohio Power Co., Canton, president-elect; William H. Collins, Cole Nursery Co., Circleville, vice-president; Dr. L. C. Chadwick, Columbus, secretary-treasurer; and Dr. Philip Kozel, department of horticulture, Ohio State University, editor.

A workhorse won't win a beauty contest

MODEL 84

You won't find fancy shrouds, shiny hubcaps or chrome accent strips on a NATIONAL "workhorse." Our 84" and 68" Triplex Mowers are not designed for beauty ...*Just performance and durability!*

MODEL 68

☐ **FAST!** With an 84 and 68-inch cut, NATIONAL Triplex mowers cut grooming time in half around greens and traps.

☐ **EFFICIENT!** National's Triplex maneuvers sharply, climbs banks and hillsides easily and safely. Three, power driven, free-floating reels follow ground contour. Reels do a precision job without skip or scalping. Handles the clubhouse lawn and practice areas, too!

☐ **DURABLE!** Timken bearings; automotive-type transmissions; heavy duty, tubular steel tie rods and bed knife frame; and cutter lip bar...all add up to more years of use!

☐ **SERVICEABLE!** No-nonsense design makes normal service faster than any mower on today's market!

NATIONAL...our reputation is your guarantee of quality! Our start in 1919 makes us one of the (if not the) oldest power mower manufacturers in the U.S.A.

NATIONAL Mower Company

660 Raymond Avenue • St. Paul, Minnesota 55114
Phone: 612/646-4079

For More Details Circle (125) on Reply Card

The whole-in-one fungicide... Daconil 2787® eradicates the ten key fungus diseases.

Why use two or three fungicides to do what Daconil 2787 does all by itself?

It's the whole-in-one cure for: brown patch, copper spot, Curvularia leaf spot, dollar spot, fading out, gray leaf spot, Helminthosporium leaf spot and other leaf spot diseases, stem rust, pink snow mold (approved in Washington and Oregon) and Alternaria leaf spot (approved in California.)

Many leading golf courses use Daconil 2787 for disease prevention on greens and fairways. It has performed well on over 25 grass species and varieties. You can spray during hot, humid weather without worry when you follow label directions.

No surfactant is needed. Daconil 2787 adheres to the grass blade, resisting washoff from heavy rains or irrigation. Saves you extra applications.

And Daconil 2787 is cleared for disease control on certain ornamentals. Another attractive benefit.

Ask your supplier about Daconil 2787. Or write: Agricultural Chemicals Division, Diamond Shamrock Chemical Company, 1100 Superior Avenue, Cleveland, Ohio 44114.

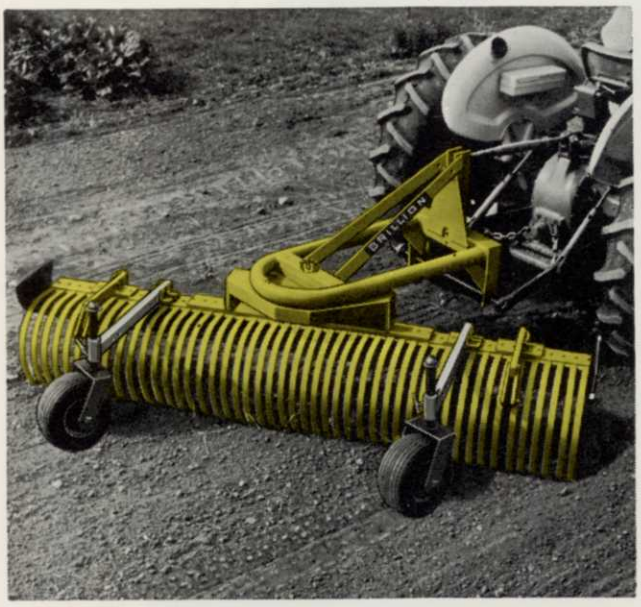
TOTAL TURF CARE

Diamond Shamrock Chemical Company

A UNIT OF DIAMOND SHAMROCK CORPORATION

For More Details Circle (112) on Reply Card

BRILLION Terra-Scaper



It works the soil, rakes, windrows, gathers... backfills, spreads, grades, levels... finishes seedbed

The multi-purpose Terra-Scaper saves time and labor—cuts equipment and operating costs on landscaping, turf maintenance and construction jobs. You can use it to break up small clods and soil—to level pulverized soil into a ready-to-use seedbed for seeding or sodding. The rake can be set at five angle positions to windrow stones, trash or debris—or straight ahead for gathering the windrows. You can add optional scraper blades for spreading, backfilling, grading and leveling of gravel, stone, soil or fill—or a scarifier for ripping sod, ridges and packed ground. Caster wheels and 6.50 x 13 flotation tires for easy maneuvering. Terra-Scaper is available in 6′ and 8′ widths for 3-point Category I pick-up. The best in the field—priced right. Mail coupon.

If Brillion builds it—it has to be better!

Brillion

BRILLION IRON WORKS, INC.
Dept. TS-41-43 Brillion, Wisconsin 54110
Please send information on the following:

- ○ Terra-Scaper Landscape Rake
- ○ 88" Mow-Safe Flail Mower
- ○ Turf-Maker Grass Seeders
- ○ Landscape Grass Seeders
- ○ Smooth Roller Pulverizers
- ○ Name of nearest dealer

Name_____
Company_____
Address_____
City_____
State_____ Zip_____

Anaheim Mayor Jack Dutton (l) watches as one of 52 trees is boxed for removal to city parks. Jori Cervantes adds final strapping to an Indian Laurel. Another 55 trees will be saved from two other road widening projects.

Anaheim Acts To Save 100 Trees

Environmental conservation and street improvement projects often meet head-on. The City of Anaheim is engaged in a program which is destined to avoid this drastic clash.

A case in point is a one-mile stretch of Ball Road, slated for alignment, new curbs, gutters and sidewalks. Presently 21,000 cars travel daily on the section and within 10 years, traffic is expected to increase to nearly 30,000 autos each day.

However, widening and aligning the street would result in the loss of 52 trees—palms, cedar, Indian laurel, carrot woods and purple leaf plum.

Anaheim Beautiful, a local group of citizens, heard of the plight of the trees and made a suggestion. The local parks and recreation department latched onto the idea and approached the city fathers. About $12,000 from the contingency fund was allocated by the City Council last December to allow the relocation of the trees to various city parks.

"Most of the trees are fairly large, but in early stages of development," said Thornton Piersall, director of public works. "A few will have to be cut down, due to excessive tree toppings, sickness or the probability that they will not survive transplanting efforts."

The result of the project will find 15 new trees at Maxwell Park, 12 will be planted at Manzanita Park (which is still under construction), Chaparral Park will receive eight, and another 10 trees will go to enhance the banks of Anaheim Lake.

The average cost for relocating the trees is about $416 per tree, Piersall noted. The removal and boxing of the trees were part of the bid for the road work, he continued, under the supervision of parks department personnel. Most of the work has been handled by subcontractors.

The program has met with such favorable community response, that a second road project is slated for similar efforts. Another 55 trees will go to Brookhurst Park and Stoddard Park from street widening projects on Magnolia and La Palma Avenue.

These trees include evergreen magnolias, Mexican fan palms and California fan palms.

Reel winners.

No matter if you want to mow a field or a fairway, Dan Boyd of Boyd Distributing Co., Inc. in Denver can get you into the kind of equipment you need to do the job best.

Just like the rest of us Jacobsen Distributors, Dan has made it a point to know more than enough about turf care to be pretty expert at it.

That's one of the reasons he carries Jacobsen gang mowing equipment. He knows, for example, that your mowing area will dictate the number of gangs, the type of reels, the right kind of wheels, the height of cut, the fineness of cut, and the speed at which you want to get your mowing done. Because of his complete line to choose from he's able to sell you what you need rather than just what he's got.

To be specific, Jacobsen Fairway gang mowers give you a choice of three different wheel styles (steel semi-pneumatic and pneumatic); six-blade standard or 10-blade high-frequency units for carpet-smooth cuts. And 3, 5, 7, 9, 11, or 13-gang combinations, with adjustable cutting heights ranging from 3/8" to 3½".

For Blitzer applications in other than fine turf areas, you have the same choice of wheels. You get bigger 10" reels with either four or five blade units; 3, 5, 7, 9, and 11-gang combinations that mow up to a 25'10" swath. And cutting heights of 1" to 3½".

In all cases, the sealed housing design means you only have to lubricate just once a year. What could be easier?

There are many more features you'll want to know about. Contact your Jacobsen Distributor about your gang mowing problems.

He'll show you a reel winner.

Your Jacobsen Distributors

Before we sell it, we buy it.

For the name of the distributor near you write: Jacobsen Turf Directory, 1721 Packard Avenue, Racine, Wisconsin 53403

For More Details Circle (130) on Reply Card

WANTED!

CUTRINE®

No. 3716351

That's our new Patent Number (Effective Feb. 13, 1973) Covering an Important Process for Making the Nation's No. 1 Algaecide.

What else?

CUTRINE Granular

Now Registered for Control of Chara, Nitella.

We Thought You Should Know We Are Still Far Ahead of the Competition!

APPLIED BIOCHEMISTS, INC.

5300 W. County Line Road
Mequon, Wisconsin 53092

For More Details Circle (124) on Reply Card

WSSA REPORT *(from page 28)*

ing of transplanted Kentucky bluegrass sod. He found that herbicides applied closer to the time of sod lifting caused greater root inhibition. Silvex and combinations containing silvex caused greater root inhibition than mecoprop, Banvel D or 2,4-D alone or in combination.

Does vitamin C help in the uptake of phenoxy herbicides? According to J. R. Baur of Texas A&M University it does. When combined with 2,4-D and 2,4,5-T in the herbicide solution, it increased the uptake of the herbicide in mesquite leaflets in the laboratory. Why? He's not exactly sure, but he suggests that it is possibly a metabolic process.

Delegates showed much interest in a speech on aquatic weed control by Harold Brown, Southeastern Helicopter Services, Inc., Fort Pierce, Fla.

"Every person involved in aquatic weed control faces the same dilemma," he said. "We used to have about 20 compounds to work with ing controlling aquatic weeds. Since the signing of the Federal Environmental Pesticide Control Act, we have only two or three compounds left. They are the only ones with a Federal label.

"The only aquatic herbicide that has been granted a residue tolerance in citrus is 2,4-D . . . Some of the producers of herbicides have been sitting on their hands," he said.

Brown outlined what use to be his weed control program for the audience. For floating weeds—Water Hyacinth — he's been using 2,4-D, Diquat and Amitrol. For alligatorweed, he reports that 2,4,5-T has been doing a superior job. In controlling emerged species he relies on 2,4-D and Casoron. Submerged weeds such as hydrilla, southern naiad, coontail and chara are controlled with Hideout, Mariner E and copper sulfate.

Ditchbank grasses — marginal weeds—can be controlled with Dalpon, says Brown. "We don't want to eradicate, only hold back growth. Monuron (Telvar) and diuron (Karmex) are also good materials."

The WSSA this year named four men to become Fellows of the Society. They are: Drs. G. C. Klingman, Elance Products Co., E. K. Alban, Ohio State University, W. R. Furtick, Oregon State University and R. Behrens, University of Minnesota.

Winners in the award program are: J. L. Hilton, USDA, for the outstanding research paper; F. W. Slife, University of Illinois; for the outstanding teachers award; E. P. Sylwester, Iowa State University, for the outstanding extension award; and, D. E. Moreland North Carolina State University, for the outstanding research award.

New officers for this year are: Dr. Earl G. Rodgers, University of Florida, president; Dr. Elery L. Knake, University of Illinois, president-elect; C. R. Swanson, USDA agricultural research service, vice-president; and R. D. Ilnicki, Rutgers University, secretary. □

—Advertisers Index—

Ackley Mfg. Company 36
Adelphi Kentucky Bluegrass 50
Amchem Products, Inc. ..... 2nd cover
American Arborist Supplies 45
Applied Biochemists, Inc. 64
Arps Corp. 50
Asplundh Chipper Co. 15
Auto Hoe, Inc. 50
John Bean Div., FMC Corp. 51
Brillion Iron Works, Inc. 62
Bunton Company 43
Certain-teed Products Corp. 37
Creative Sales, Inc. 48
Coursigns, Inc. 58
Deere & Company 13
Diamond Shamrock Chemical Co. 61
C. B. Dolge Co. 25
Dow Chemical Co. 21, 34-35
E. I. duPont de Nemours & Co., Inc. 7
Elm-R, Inc. 46
Ford Tractor & Implement Operations 3
Clifford B. Hannay & Son 46
Hypro, Inc. 45
International Harvester Co. 16-17
Jacklin Seed Co. 9, 40
Jacobsen Mfg. Co. 63
Jenkins Equipment Co. 48
Jobe's Tree Food Spikes 52
Lofts Pedigreed Seed Inc. ..... 4th cover
J. J. Mauget Co. 5
Manhattan Ryegrass Growers Assn. 6
Merck & Co., Inc. 59
Mobile Aerial Towers, Inc. 41
Mott Corp. 49
National Mower Co. 60
Niagara Chemical Div., FMC Corp. 10
Nugget Kentucky Bluegrass 30
Oregon Chewings & Creeping Red Fescue Commission 57
Pioneer Chain Saws 22
Product Development International 30
Rain Bird Sprinkler Mfg. Corp. ..... 3rd cover
Ryan Turf Equipment 39
O. M. Scott & Sons 29
Servis Equipment Co. 31
Smithco, Inc. 58
Sod-Master, Inc. 53
Spraying System Co. 52
Stauffer Chemical Co. 56
Telsco Industries 33
Thompson-Hayward Chemical Co. 27
Twin City Seed Co. 43
Vermeer Mfg. Co. 38
Waldon, Inc. 47
Wheel Horse Products, Inc. 11

— classifieds —

HELP WANTED

COMMERCIAL TREE and Landscape Professionals, the growth potential is here! We need your experienced help—now! Needed: Tree Dispatch Superintendent—Central N.Y., with 5 years experience. Needed: Tree Sales Representative — Central N.Y., with 1 or more years experience. Needed: Tree Sales Representative — Western N.Y., with 5 years experience and management ability or experience. Needed: Landscape Design & Sales Representative—with 5 years experience. Write: K. A. Knox or F. R. Micha, Monroe Tree & Landscape, Inc., 225 Ballantyne Road, Rochester, New York 14623. Salary—best in the business, if you qualify. Company car furnished — full time. Unique Commission Plan —in addition to salary. Paid Hospitalization & Pension. We will help you re-locate. We need your talents in our growth plans. Write today!

LAWN and TREE SERVICE. Do you have a college degree in forestry or Agronomy or Urban Turfcare? Do you have 5 years or more practical experience? Are you commercially oriented? Can you manage market, sell, organize, plan and direct a large service organization? Do you honestly feel you should be earning more? Then you may be just the person we need. Profit Sharing—all employee benefits and best of all a share of profits as a minority owner. Our employees know of this ad. An equal opportunity employer. If you wish, send resume and photo to: Lawn & Tree Care Service, c/o 646 Dickinson, Memphis, Tenn. 38107.

LANDSCAPE PROJECT SUPERvisor. Man experienced in handling equipment and men on landscaping projects. Will construct athletic fields, parks and lawns for municipalities, schools and corporations. Only those with superior qualifications will be considered. Excellent pay and fringe benefits. Send resume to Turfco Lawns, Inc., 1619 Bethlehem Pike, Flourtown, Pa. 19031.

Golf Course Sales

The nation's leading commercial turf products company has several openings for technical representatives to promote a special line of commercial turf products. Representatives will call on golf course superintendents as well as industrial and educational institutions. Applicants should have a BS degree or its equivalent in one of the agronomic sciences, plus have sales or practical experience in the turf industry. In addition to an excellent starting salary, commission and automobile, we offer a comprehensive benefit program at no cost to the employee.

Send resume in confidence to:

Box 97, Weeds, Trees & Turf,
9800 Detroit Ave., Cleveland, Ohio 44102

An Equal Opportunity Employer

ARE YOU READY to take over a well established tree department, run it like it was practically your own business without capitalization problems? If so, contact us soon. Our 45 years experience in this area gives you a solid foundation to work from. Heyser Landscaping, Inc., 400 North Park Avenue, Norristown, Penna. 19401. Phone 215 539-6090.

GARDEN CENTER MANAGERS. Expanding business, wants four people with selling and management ability. Excellent starting salary and profit sharing. Horticulture background required. The ideal job for the person who wants to run his own show. Send resume to Island Gardens, 22 Northern Blvd., Greenvale, N.Y. 11548.

DISTRIBUTORS for D. J. Andrews, Inc. stump cutter teeth, pockets and bolts. Best wholesale and retail price in U.S.A. Add to this exclusive area, local advertising at our expense, etc., and you have our story. D. J. Andrews, Inc., 17 Silver St., Rochester, N.Y. 14611. Call 716 235-1230, or 716 436-1515.

LANDSCAPE DEPARTMENT MANager. We need a take-charge person to act as assistant to the president, and who can work into management of our landscape contracting/maintenance department. Good salary and profit sharing. Send resume to Island Gardens, 22 Northern Blvd., Greenvale, N.Y. 11548.

POSITIONS WANTED

CEMETERY SUPERINTENDENT or golf course assistant superintendent. B.S. degree in turf management from management from University of Massachusetts, also B.A. degree in mass communications. Experience in cemetery and golf course maintenance, also in forestry. Willing to relocate. Available May, 1973. Robert Keating, Jr., G-17 North Village Apts., Amherst, Mass. 01002.

WEED CONTROL—12 years experience with a major company. Experience in sales, operation and some management. This includes, railroads, and industry. Would prefer sales in the eastern part of the country. Box 99, Weeds Trees & Turf, 9800 Detroit Ave., Cleveland, Ohio 44102.

EDUCATION-BOOKS

LEARN AUTOMATIC IRRIGATION —Complete self-taught course and textbook on fundamentals. Design, operation, maintenance, installation, pipe, equipment. Latest developments in automatic turf and landscape irrigation. New Edition now only $49.50 postpaid. California add tax. Send check, order or request for free outline. Larson Company, P.O. Box 4453, Santa Barbara, Calif. 93103.

SEEDS

CROWNVETCH SEED: Penngift and Chemung varieties. Direct all inquiries to: Walter C. Mehlenbacher, Castile, New York 14427. Phone 716 493-2553.

SOUTH DAKOTA-Kentucky Bluegrass seed, also Park, Nugget and Merion. Afton Seed Co., Winterset, Iowa 50273. Phone 515 462-1270.

SOD QUALITY MERION SEED for discriminating growers. Also Fylking, Delta, Park, Newport, Nugget and Pennstar bluegrasses as well as fine fescues. We will custom mix to your specifications. Michigan State Seed Company, Grand Ledge, Michigan 48837. Phone 517 627-2164.

MISCELLANEOUS

TREE APPRAISALS, SURVEYS, loss evaluations and expert consultation services. For names of members of the American Society of Consulting Arborists, Inc., throughout the country, contact: Executive Director ASCA, 12 Lakeview Ave., Milltown, New Jersey 08850.

FOR SALE

DOUBLE EDGE sod cutter blades. Will fit any Ryan sod cutter. Works like double edge razor blade. Cuts much more sod per blade. Made to bolt on both ways. $24.00 plus postage. New automatic sod loaders for direct loading to pallets, trucks or trailers. No workers needed on ground. Both products developed and designed by Hadfield. Write or call Glen Hadfield, 4643 Sherwood, Oxford, Michigan 48051. Phone 313 628-2000.

THE GOLD ONES from D. J. Andrews, Inc., Stump cutter teeth, pockets, and bolts. Top quality and best price in the U.S.A. D. J. Andrews, Inc., 17 Silver St., Rochester, N.Y. 14611. Call 716 235-1230 or 716 436-1515.

ALL TYPES Landscape Stone-Boulders, Rough Flagging, pebbles, building stone, etc. (White and all colors.) Please contact us for estimate. Valley Forge Stone Co., RD3, Box 115, Fleetwood, Pa. 19522. Phone 215 944-7171, 215 779-7698 evenings.

PICKUP LOADING RAMP—Safety-cleated steel construction. Gives 6½ ft. slope, 3 ft. wide. Free brochure. Maple Valley Mfg. & Supply, Aurelia, Iowa 51005.

USED EQUIPMENT

RECONDITIONED brush chippers, sprayers, log splitters, stump routers, bucket trucks. Let us know your needs. Equipment Sales Company, 5620 Old Sunrise Highway, Massapequa, New York 11758. Phone 516 799-7619.

2—ASR—2 RYAN sod rollers, one used, one new, both priced to sell. Sharon Welding Co., 11674 U.S. 42, Cincinnati, Ohio 45241. Phone 769-4061.

TM-700 TREE MOVER, like new condition; manuals and extra parts. Parsons Tree Service, 5628 Maxine Court, Alexandria, Virginia 22310. Phone 703 971-3998.

VERMEER model 2460 stump cutter —will take model 6 in trade. Green Terrace Nursery, 3711 Fond DuLac Rd., Oshkosh, Wisconsin 54901. Phone 414 231-7660.

USED JOHN BEAN Rotomist sprayer, Model #100E, Serial #76605, trailer mounted and ready to go. Conrad's Irrigation, Inc., Box 526, Gaylord, Kansas 67638.

FOR SALE: Vermeer stump grinder #10, rebuilt engine, like new, $2350.00. Phone 414 873-3390.

trimmings

CHEMICAL LABEL READABILITY has been questioned by the USDA and the Environmental Protection Agency. In a study conducted by the University of Illinois it was found that today's environmental protection chemical label is fairly difficult to read. In fact, it is suitable only for those with at least 10 to 12.9 years of formal education. It was reported that pesticide labels can be improved by changing type sizes, space between lines, color of print and background and type format. Lastly, the study concluded that the pesticide industry must take greater steps to make labels easier to decipher.

SOUTH DAKOTA RESEACHERS have been busy sampling pesticide residues in wild ruminants (animals that chew the cud). They report traces of residues are widespread, but the levels are far below the Federal tolerances allowed for domestic livestock.

WHY DOES HERBICIDE performance vary? Dr. J. B. Weber of North Carolina State University reports that performance is tied into the reaction of the chemical with the various properties that make up a soil. All soil contain mixtures of sand, silt, clay, organic matter and other materials. One type of material generally predominates. He offers these rules of thumb on predicting herbicide behavior in soil:

1. Herbicides are more active on sands, or coarse textured soils. Increase the rate of herbicide as the texture of the soil becomes finer.
2. Herbicides are more active on mineral soils than on organic solid. As organic matter content increases in the soil, increase the rate of herbicide.
3. Volatile herbicides readily evaporate and must be incorporated in the soil to be effective.
4. Water soluble herbicides are more mobile and active in soils than insoluble ones. Use water soluble herbicides on mineral soils.

EPA'S RUCKELSHAUS has established policy for the protection and preservation of the Nation's wetlands. Just above everything that has non-flood waters covering it for some period of a year is included. The policy is to minimize alterations in the quantity or quality of the natural flow of water, protect against additions or deletions of soil, solid waste, siltation, pesticides or toxic materials and prevent violation of water quality standards. No funds are to be granted for construction of municipal waste water treatment facilities which may interfere with the wetland ecosysem. The exception to this is where no other alternative or lesser environmental damage is found to be feasible. EPA will also consult with the Dept. of Interior in determining the probable impact of the pollution abatement program on fish and wildlife in the wetlands.

NORFOLK AND WESTERN RAILWAY is getting into the beautification business. In mid-March they planted 2,800 trees and seeded several embankments in the Norfolk, Va. area. Project was in cooperation with the Virginia division of forestry and the Virginia Dare soil and water conservation district. Similar projects are being planned at several other locations across the 14 states served by the rail carrier.

SUPERWEED IS SPREADING. It's called Kochia scoparia or just plain cockia and it is one of the toughest, meanest and ugliest plants around. It can grow to a height of 10 feet along fences, although normal height is between three and four feet. It likes to live where there's plenty of salt, auto exhaust fumes, dust and cracks in concrete. And it is dispersed by large quantities of seed when the plants break loose in late fall and tumble in gusty winds. Here's another example of where weeds have adapted to man's environment.

GARY H. BAISE will continue as director of the Environmental Protection Agency's office of legislation, according to an announcement by William D. Ruckelshaus, EPA Administrator. He had been assistant to the administrator since 1970. Last January, a year ago, he was named director, office of legislation.

Stihl's Answer To Saw Safety

At least one major manufacturer of power saws is doing something about promoting safety among chain saw users. Stihl American, Inc. of Midland Park, N. J. has developed an unique safety chain brake that can stop a whirring chain instantly with no resultant damage. It provides safety in starting an engine, safety when cutting in the event of kickback, and safety when carrying.

Here's how the brake works. On most saws the chain begins to move when a centrifugal clutch engages with increased engine revolutions. At idle the clutch disengages and the chain stops.

Stihl's quickstop safety brake system features automatic disengagement of the clutch. Through the use of a hand guard, which actuates the system, the operator can deliberately stop the chain movement.

One quick push forward on the lever causes a cam located in the clutch cover to push a disk on the crankshaft slightly outward. This causes a steel pawl to release the disk and power between the engine and the chain is cut. A pre-tension brake engages the rim of the clutch drum and stops the chain. All this take place instantly. The engine continues to run without stalling.

Broken down into fractions of a second the clutch disengages first. Then the brake is applied. Thus, with no power on the chain, minimum braking power is needed. It also means no stress on the crankshaft.

Pulling the lever back reverses the process. Brake is released, disk on the crankshaft is pushed back and steel pawl engages crankshaft with clutch. A built in safety feature requires the engine to be at idle speed before re-engagement of action on the chain.

This clever system can be used when starting the engine. Chain will not rotate even if the engine is at full throttle. Accidents from kickback are minimized by instantly stopping the chain. And for arborists in trees this feature adds an extra measure of safety in using a power saw. A chain that's not moving means less chance of accidental rope cuts.

Stihl says that the quickstop system will be available for most of their saws soon. It has also been designed to fit on existing professional models.

Look at it this way

Before selecting an automatic irrigation system, consider the viewpoint of a blade of grass. It wants to see enough water coming its way often enough to keep it healthy. How much and how often depends on such variables as growing conditions, sun and shade, height, temperature, and course contour. That's why the happiest sight a blade of grass can see is a member of Rain Bird's exclusive Golf Team (six full time golf irrigation experts) consulting with a Rain Bird installer and the superintendent—right on the course. It means the best irrigation plan, tailored to your course, carried out with the most reliable equipment. Ask anyone with a Rain Bird system. Ask any blade of grass.

RAIN BIRD®
Glendora, California 91740

baron

U.S. Plant Patent No. 3186, Dwarf Variety

the aristocrat of Kentucky bluegrasses

$1.25 per lb.

STRONG ROOT GROWTH is the secret of **baron**'s dense turf. It is the extremely rhizomatous nature of **baron** Kentucky Bluegrass that is making it the favorite of the turf production industry. It rapidly forms a dense turf which is lifted and transported easily without damage. *In the Midwest,* **baron** *sod has been lifted 10 months after planting.*

QUICK ESTABLISHMENT is another important characteristic of **baron**. This laboratory photo shows a germination test on **baron** (right), as compared with Merion, just two weeks after sowing. In the soil, the difference is even greater.

baron is available as sod from leading sod growers across the country.

For details (and the name of your nearest **baron** distributor or sod grower) on this fast-germinating, slow-growing, disease-resistant, winter-hardy bluegrass for golf courses, fine lawns, commercial locations, and sod production, write or call Lofts.

LOFTS

Exclusive North American Grower and Distributor

Lofts Pedigreed Seed, Inc.

Bound Brook, N.J. 08805/(201) 356-8700

Exclusive Canadian Distributor: Oseco Ltd., Brampton, Ont.

GOLF COURSE BUILDERS OF AMERICA MEMBER

For More Details Circle (135) on Reply Card